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GOTYE

Production Secrets of Pop Music's Best Hope

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- Miles Robertson

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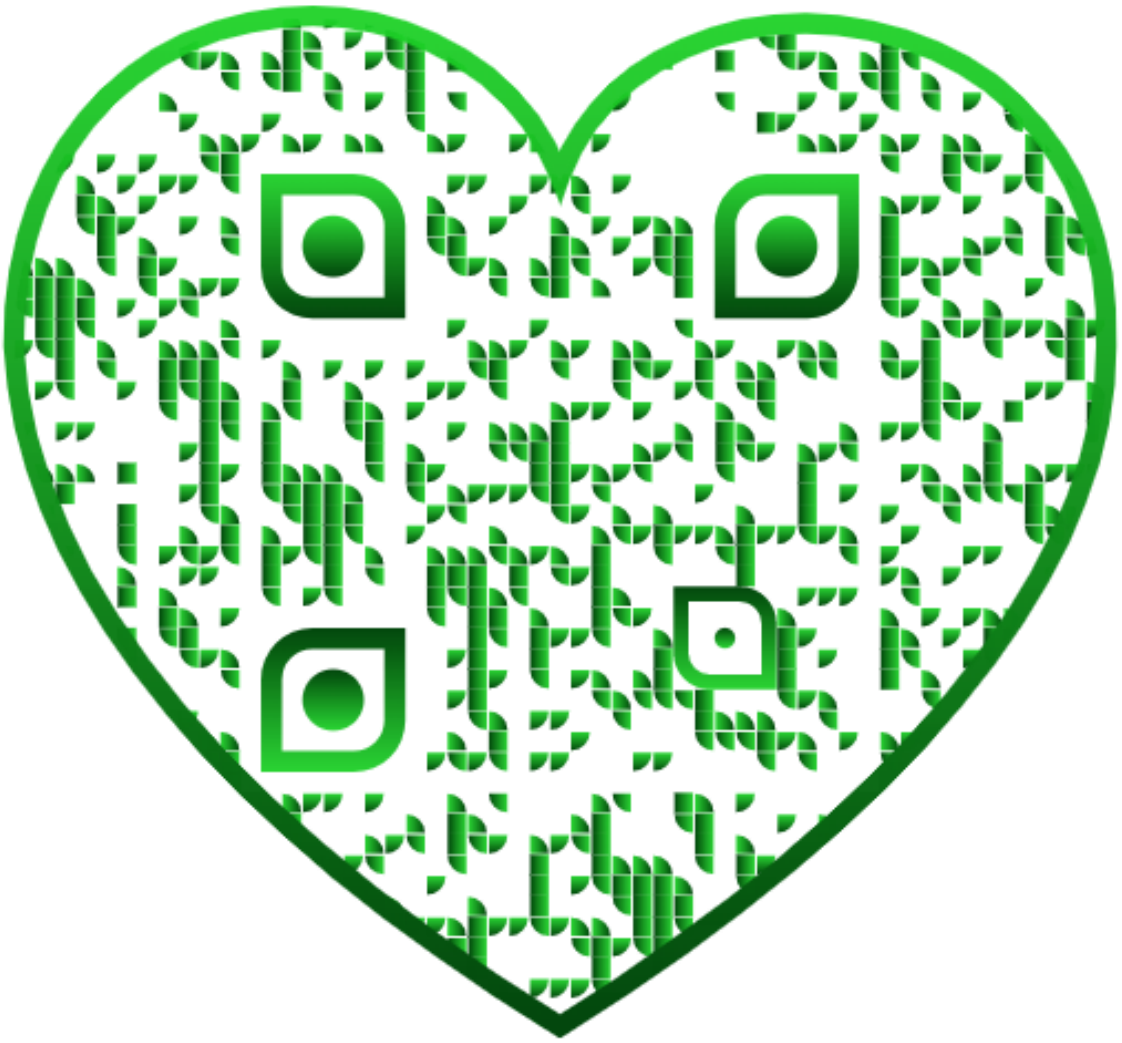

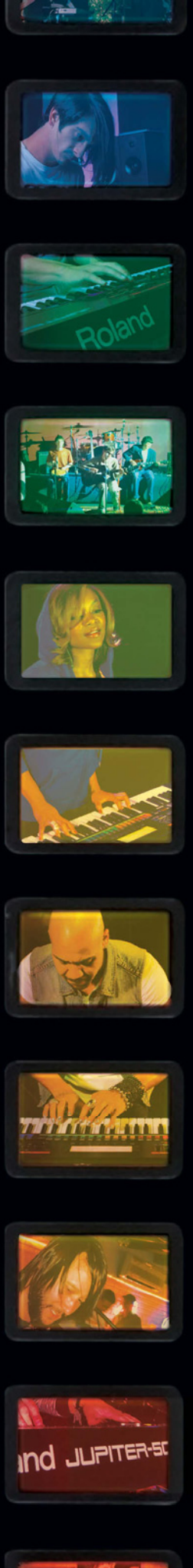

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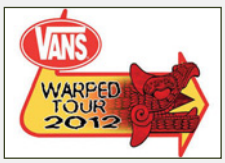

Keyboards on the 2012 **Vans Warped Tour**.

We play Dave Smith's vintage Prophets and new **Mopho x4** synth.

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Keyboard

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Editor's Note

Announcing the *Keyboard* Readers' Poll

Feeling burned out on all the advertising and media hubbub relating to that *other* election that's coming up? Here's an opportunity for your vote to really count, even if you don't live in a swing state. A colleague recently said to me that when guitar players get together, they talk about other guitar players, but when keyboard players get together, they talk about gear. No generalization is without exceptions, of course, but it did ring true enough that I began to think about taking all of our collective gear talk and formalizing it into a resource for readers and the keyboard/recording gear/pro audio industry alike.

Hence, the reboot of a storied *Keyboard* tradition: the Readers' Poll. We'd like to hear from you about your favorite gear, and we're teaming up with our friends at Broadjam, a leading music peer review and direct-to-fan site, to collect your votes and tally the results. What sort of gear, you ask? Categories will be wide-ranging, including (for example) high-end, midrange, and entry-level synth workstations; DAWs; performance synths; analog synths; drawbar organs; software instruments; and more. We plan to announce the winners in the January 2013 issue—a fitting way to close out 2012. For more info on voting, incentives, and prizes, head to keyboardmag.com/poll. Have an opinion about categories and nominees? Pick your preferred shout-out method from the options at right.

We give you our opinions about gear all the time. Now, let's hear yours!

Stephen Fortner
Editor

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Hall of Fame Feedback

I was one of the first subscribers to *Keyboard*—back when it was *Contemporary Keyboard*. In fact, I have a complete collection of the first five or six years. Therefore, I'm probably going to be one of those people you mentioned who'll question your selections in last month's Hall of Fame: I'm surprised you didn't include Harry Chamberlin. His invention [shown], the precursor to the Mellotron, was monumental in the development of orchestrial music in rock. I'd like to nominate him for the next installment of the Hall of Fame.
Robert Freer, Milwaukee, WI, via email

Nomination gratefully noted. The tape-playing Chamberlins could be considered the first samplers, after all. This fits right in with our theme of people and inventions that opened up new creative and career possibilities for others. —Ed.

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Dig My Rig

Adam Embree *of Kansas City-based electronic pop band the Solution shares part of his rig with us, a modular synth setup that includes a Moog Little Phatty and Slim Phatty, Moogerfoogers, and Korg Monotron and Monotribe synths. Find more pics and info at ipages.iland.net/~embree/thesolution.*

I have all of the audio I/O and most of the CV on the Moogerfoogers and Slim Phatty connected to two patch bays. I also have the CV out mod on my Little Phatty Stage II, so I can patch that into everything. When we use our full setup live, I made a TouchOSC patch for the iPad to control track sends in Ableton Live. Those sends are routed to a couple of external effects loops which are sent over to the Moogerfooger case. I can patch any of our tracks in Live to the Moogerfoogers to process however I want. The USB MIDI of the Phatty is connected to the computer, letting me use the Phatty as a keyboard controller for soft synths while leaving the regular MIDI jack available for poly-chaining more Phattys. All this patching adds an element of improvisation that's otherwise more difficult to achieve. I custom-built the rack with my dad; it folds and locks for easy transport.

Key Secrets

Creative Tips for Your Gear

Drumming Up New Melodies: One of the coolest grooves I've made was unintentional. I'd created a pattern in the 7/4 time signature on a vintage Yamaha RX11 drum machine and then accidentally connected its MIDI out to a Korg EX-800 sound module. Each drum hit triggered a note on the synth, but the patch's slow attack and fuzzy sound filled the gaps between the drums rather than doubling them. I then remapped the notes on the drum machine to a minor scale to complete the mood. You can use this technique in the other direction, too: Assign a melody line to play percussion or sound effects. You'll get surprising grooves, especially if your melody uses pitch-bend. David Battino

NEW GEAR

BY STEPHEN FORTNER

DAVE SMITH INSTRUMENTS MOPHO x4

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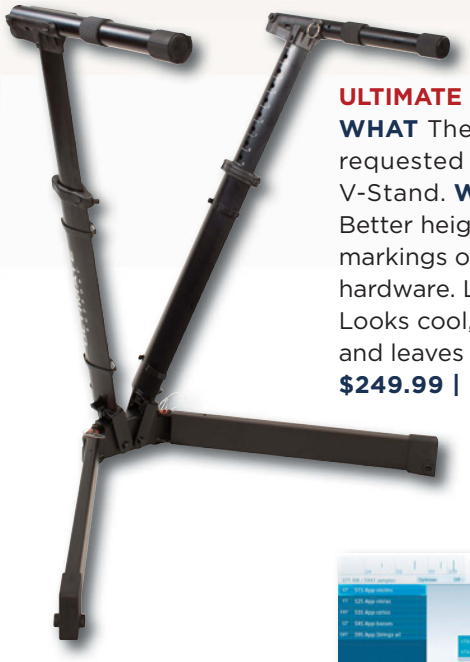

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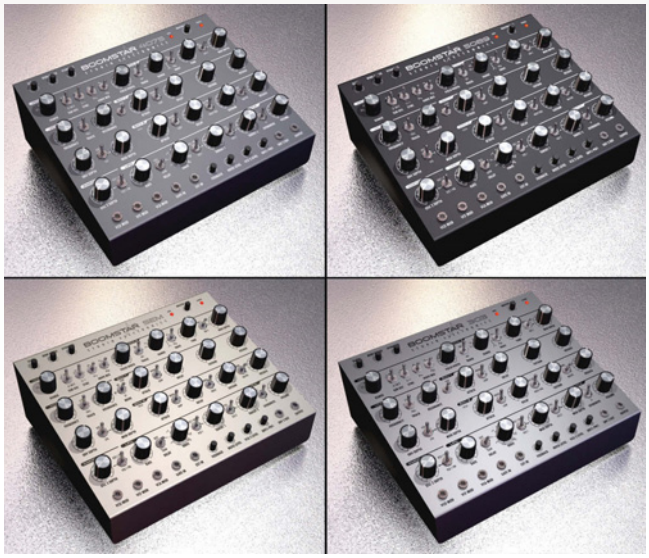

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Forget about *that* song for a minute. You know, the one everybody sings along to and that *almost* everybody has remixed. What first grabbed our attention about Wally De Backer—Gotye to his fans and the myriad of charts on which he's hit number one—was "State of the Art," a surreal ode to a real instrument, the Lowrey Cotillion organ. In the video (a retro-mod treat by animation studio Rubber House), a Cotillion displaces a suburban family's TV, usurps all their free time, comes to life, and eventually assimilates them into its electronic innards. Our first thought: *This is one guy who knows how a new keyboard makes you feel.*

GOTYE

BY STEPHEN FORTNER

HIS SINGING HAS DRAWN COMPARISONS TO STING AND PETER GABRIEL, but a good listen to his quintuple-platinum album *Making Mirrors* proves that this compliment is just as aptly paid to his production ethos: He masterminds every phase of the process hands-on, melds globetrotting musical motifs into a sound that's chameleonic but always unmistakably *him*, and unfailingly presses technology into the service of memorable hooks and melodies. That he has rocketed to international stardom in spite of being so musically and technically deep gave us our next thought:

There's hope for pop music.

CYBELE MALINOWSKI, INSETS: JAMES BRYANS

"State of the Art" is about one of those living-room organs, the ancestors of the modern arranger keyboard. How did you come to write a song about *that*?
My parents found a secondhand Lowrey Cotillion about three years ago. They gave it to me as a Christmas present, and I was fully functioning. It just really caught me with all the *sounds*. Mainly the "Orchestral Symphonizer" [a pseudo-synth for acoustic sounds], the choir, and all the cool sounds on the top manual. I wanted to make a tune with *just* that organ. That didn't quite happen, because there are samples and other instruments on the track. But it still showcased the organ, and I struck upon the concept of a love song to the organ itself, and maybe a broader reflection on what the nature of relating to a "state of the art" piece of technology can be like.

So most of the sounds on that song were from the Cotillion?
Yeah—the leads, organ sounds, and things the lyrics talk about like the repeating banjo, Orchestral Symphonizer, Genie bass, things like that.

What was your first instrument?
Drums. It took me a few years to convince my folks to buy me a drum kit—maybe by the age of 15. I avidly pursued that until about 19. I played in my high school band, brass bands, and a band I put together with my mates. I naturally gravitated towards the piano from there to try to work out the Depeche Mode and Pink Floyd songs I was into. Then, I started to discover different synthesizers and went through that tech-head phase you go through when you first discover the amazing world of technology.

On that subject, what was your point of entry into synthesizers?
I don't remember specifically. Depeche Mode would be a good example of hearing a synth sound and wanting to know what it was. The record of theirs I was really into, though, was *Songs of Faith and Devotion*, which had a more "processed organic" kind of sound—a rock sound, even—rather than more synth-y stuff. I wondered about how those sounds were made.

Probably the first "synth" I bought was a Roland Groovebox—an MC-303—on which I programmed drum parts and played around with synth bass parts. I also bought a Yamaha DX7 secondhand around the same time, which I still have.

Tell us about producing your first tracks. In your bio, you talk about an old 386 computer and putting up mattresses.
I bought a computer to record that high school band of mine, and then the band promptly broke up! [*Laughs*.] So I was left with a computer, a soundcard, a mic, bits of gear, and a few songs we hadn't recorded yet—but no band to play with. That's really when I started getting into sampling.

Did you have any traditional piano training?
Not at all. Between my drum skills and bits of keyboard skills, I sort of acquired that peculiar sensitivity you need to play sampled instruments—that sense of anticipations and delays, of the different feels and velocities that you need to apply on MIDI controllers or a Mallet Kat or a Novation Launchpad. But I don't consider myself a great keyboard player.

You could have fooled me, given the record. There's this keen sense of *counterpoint* throughout all the songs.
I'm glad you hear that. There's a lot of that in the vocals. It's something I realized very clearly, especially when I started to arrange it for playing live. One example is that a lot of the backing vocals provide very strong hooks and there's a real conversation going on between backing and lead vocals. You couldn't just drop the backing vocals or let them get lost in the live mix—you'd be losing a whole conversational aspect of the songs.

One really hears it on the bonus track "Dig Your Own Hole"—to my ears the closest thing to synth-pop you've done.
You know, I thought that was a shoe-in for the record, but it just kept getting harder to make it make sense. On one level I feel like I overproduced it, or maybe produced myself out of being energized by it. But it does have those counterpoints, those micro-hooks that keep

Gotye on Gear

YADI

"Me and Tim Shiel—who plays main keyboards and samples other than whatever I trigger—we've condensed it down to two MacBook Pros, and we put solid-state drives in both of them," says Gotye about his band's touring rig. "We also bought LaCie Mini Big Disks, which are SSDs in external cases, connected by Thunderbolt."

"Each system runs Ableton Live. One sits with our drummer Michael Iveson, and contains bits of backing vocals and percussion that we can't play live. This also hosts our visuals, which run in HD. Michael has a Novation Launchpad, which starts songs, switches sections, and keeps a section looping if we want to improvise over it. One laptop takes care of all that.

"The second laptop sits with Tim. All our MIDI inputs go into Ableton Live on that. There's my Mallet Kat and my Launchpad. Tim has an Akai EWI. He had a MIDI Theremin until recently when it broke. He also runs a Launchpad and a little Akai keyboard. We have a Nord Stage for piano sounds. All those things go into Ableton and then through various effects.

"Tim managed to set up all of our live-triggered sounds in one Ableton project with no changing projects between songs. He doesn't need to look at the computer—he can switch all our different channels and groups of sounds in between songs on his Launchpad. That's really freed it up for us, making it much more about performance. If Tim wants to ham it up and make things very visual, he can do so on all the different shapes and sizes of MIDI instruments we have, rather than being stuck behind the computer."

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coming back over each other on different little layers.

At the time, I was really into a blog called Arawa.fm. It's sadly now defunct, though I believe they switched to a Tumblr thing. [*The contents are archived at arawafm.tumblr.com. —Ed.*] It had this dark, '80s analog synth, Italo-disco, horror-goth aesthetic, which I just loved. They'd dredge up all this Eastern bloc, bad English lyrics, Euro-disco that had great sounds and production. So making a track like "Dig Your Own Hole" was sort of a direct response to that, just in terms of playing with those sorts of sounds.

You sampled the Winton Musical Fence in Queensland, Australia, for the bass part of "Eyes Wide Open." How did you turn struck sounds from the fence into pitched notes for the bass line?
I sampled the fence using a little Roland R-09 recorder. We ran it through some guitar amps and there was some pitch-shifting of just a few samples. But really, that was it—the recording of the fence plus some re-amping and reverb is pretty much what you hear.

The drums on "Eyes Wide Open" play ghost sixteenth-notes on what sounds like toms, creating a galloping effect not unlike Kate Bush's "Running Up That Hill."
That song was an inspiration, in fact. When I hear "Running Up That Hill," the drum sounds are much bigger—and the tempo slower—for the "gallop" aspect. The gallop part of "Eyes Wide Open" used close-mikings with high gain on a snare drum with the snares turned off. We did things like pressing down on the skin and letting it go, so when the sweat on your finger would finally let go of the drum, you'd get this sort of *soo-whack, soo-whack* sound.

***That's* how you got those ghost notes on it. . . .**
That's how the ghost notes for the "gallop" happened, yes. The main sound is more programmed. The fills—the watery, explosive drums that fill into the first chorus—that was actually me playing some floor toms in the studio. We recorded them through mics that sat near an open piano, picking up resonance from the piano soundboard. That was an idea of François Tetaz, who engineered that session. He loves doing stuff like using a piano as a reverb chamber.

What's your platform of choice for music production?
I start in Ableton Live, generally. My first two records were made in Acid Music Studio, and then I moved to Ableton around 2005 to do live shows. Then I began *starting* projects in Ableton. At some stage I usually cross over to Pro Tools to save engineered vocals and to do any vocal comping or live instruments, partly just because Pro Tools is really good at editing audio on multiple channels. Also, François and most people I know will be mixing in Pro Tools eventually. Songs that are halfway done will migrate, and there'll be Ableton and Pro Tools projects at the same time, with ten versions of whatever's been engineered in each—until I finally bring everything out as audio tracks into one master Pro Tools project and start doing rough mixes.

Do you start writing songs on just the computer or do you have external synths from the get-go?
It varies. It could be a sample from a record that I chop up and make a new loop from in Ableton. Then, I might play something like a thumb piano or a Stylophone and record that with a mic—maybe onto a tape machine. Then I might run that tape machine into Pro Tools, chop it up, turn it into a sample, and play that back in Ableton from a drum rack to come up with a line. So it's usually just running things through different signal paths until an idea sounds right.

Do your ideas begin more often with a melody or lyric that then suggests a rhythm, or with a beat that suggests a melody?
It really varies. I wrote "Eyes Wide Open" at the piano, plunking out chords, which prompted a melody and lyrics, and then started the process of arranging the sounds, and then the whole sense of it found its way into my field of vision, nicely formed.

On the other hand, "Bronte" started with a few different loops from records that I had running together. I did some backing vocal ideas to create a harmony structure for which I had no song yet. Months later, I listened to it once and then immediately wrote the melodic backdrop for the lyric about friends of mine who'd had to say goodbye to their dog. It was on my mind and raw at the time, and just went with the music.

Other times, it's certain instruments—a synthesizer, a piece of hardware, or an acoustic instrument—which prompt a hook, and away I go. So it's just fishing until something feels like an exciting catch.

One aesthetic in pop music is the singer-songwriter. Another is the technical production wizard. How do you feel about being the rare synthesis of both of those?
That's interesting. If we're talking mainstream pop, I'd say the acoustic singer-songwriter—other than Adele and her success—*isn't* represented so much in the charts. Maybe you get Jason Mraz or Bruno Mars, who's obviously a talented guy as he's got a great voice and can play all those instruments and produce. But otherwise, I'd say the thing in mainstream pop is super-aggressive dance production that's mostly about sex and being in the club.

There are also the big MCs, and maybe a corporate rock thing where bands like Nickelback are still somehow among the biggest acts in the world. To me, *those* are the tropes that you have to match up with to be a big hit. What I do is pretty removed from most of those things, so it's been kind of peculiar to have the success of "Somebody That I Used To Know" put me amongst all that.

Having become what can only be called huge, how do you want people to perceive you and your music?
I'm just interested in a lot of different things, so I try to bring them together. I'm grateful that the more peculiar aspects of what I do haven't been a barrier so far. At the same time, I'm quite aware that it's one song that seems to have resonated with people so strongly. When I get recognized on the street, people are like, "You're the *singer* guy!" It's only those who check out the album or do a bit of reading online that realize there's a whole other aspect of how I put music together. It would be great if more people discovered that. ♫

Gotye talks about sampling Australia's Musical Fence and about his gear in these videos!

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GARBAGE

Vig and Erikson on Synths, Sounds, and Songwriting

BY MITCHELL SIGMAN

GARBAGE MADE A GIANT SPLASH IN 1995 WITH THEIR SELF-TITLED DEBUT, cleverly combining grunge guitars with '80s-influenced synths, innovative sampled noises, and Shirley Manson's powerful, brooding alto. The band put out three more studio records before going on hiatus following 2005's *Bleed Like Me*. Now, Garbage's new album, *Not Your Kind of People,* is packing in the fans on the supporting tour. At a recent show in Las Vegas, drummer and producer Butch Vig (whose production credits include Nirvana, Smashing Pumpkins, and Green Day) and keyboardist/guitarist Duke Erikson talked to us about the signature sounds on the new record. Between their gear geekery and penchant for sonic experiments, we're not sure about the album title—they're certainly *our* kind of people . . .

How pre-planned was the sound you were going for on the new album?

Butch Vig: We didn't want to reinvent ourselves—we just wanted to embrace things that we like, including fuzzy guitars and beats, trashy drums, pop melodies, electronica, and atmospheric stuff, but I think just having time—almost seven years since *Bleed Like Me*—gave us a pretty good spark. The songs came really quick over the course of two or three months—around 25 songs. It was the first record we haven't done in Madison [Wisconsin] as well; we did it guerilla-style in Los Angeles. Our engineer has a small studio and did some. Steve and Duke did some. I have a little bedroom studio. It has a different sound, but still sounds like us.

Do you develop songs from loops, or do you start with chords on acoustic instruments?

Duke Erikson: It's different every time. It'll be a melody or a line, or someone will work at home and come up with an almost fully-formed song, at least idea-wise. By the time it's done and everyone's had their way with it, it doesn't sound anything like it did ar first. Other times, we'll have an approach like, "Let's do something that's all synths and no guitars." We'll make temporary rules that usually get broken, but that can sometimes guide you along the way and lend a certain character.

Do you find yourself using more hardware instruments and effects or are you leaning toward plug-ins?

DE: All of the above. We used a lot of plug-ins I hadn't even heard of until I got in the studio. Billy Bush, our engineer, has every plug-in you can imagine, 20 guitars, 14 amplifiers—it's like a candy store. We had many plug-ins and a variety of keyboards ready to go. And we used the Glamour Box, this really f***ed up analog synth and noise generator.

BV: It's so ironically named. The sounds that come out of it are so ugly. We use a lot of Death By Audio pedals too: the Fuzz War and Fuzz Gun.

What's creating the vocoder sounds in the breakdown of "Automatic System Habit"?

DE: That was pretty fun. We had an idea in that break for Shirley to repeat the phrase "automatic systematic habit" over and over, so she did and I played her voice using a soft-synth vocoder.

The dense harmonica sounds in "Control"—real harmonica or synth?

BV: Real. Since I can't really play harmonica, it's a dead simple part. Someone told me you

JAREED

should always get a harmonica that's down a fourth. Turns out it wasn't in the right key. If I did it backwards [*inhales*], I could bend it down. I ran it through Serato Pitch 'n Time and transposed it to the key that the harmonica was in, then played along with the intro.

There's a distant resonant pad in the intro and verses of "I Hate Love" . . .

BV: That was probably a Virus. I was trying to get some stuff where you could hold the chord and it would morph. When Shirley sang that, the initial jam was about 30bpm slower—around 95 or 100bpm. It was heavier sounding. We sort of lost interest in it, then one day we thought we should speed it up and make it sound more "club". Once we did, I added some more synth stuff at home and sped up the original vocal 30 or 40bpm in Pitch 'n Time. The vocal sounded almost behind the beat because it was initially so slow. Shirley re-recorded the vocal at the faster tempo, it was more on the beat but actually not as interesting, so we used the time-compressed vocal.

How did you get the spacey piano sound in "Beloved Freak"?

DE: That's a software instrument included with Pro Tools, called MiniGrand. We EQed and compressed it and added more reverb; it's got a nice 3D quality to it.

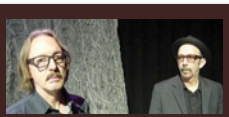
How about the distorted synth loop in the intro to "Battle In Me"?

BV: Glamour Box! The Glamour Box is all over that song.

DE: We even gated the Glamour Box on the chorus, to get a rhythmic effect and to add some white noise to the guitars.

It's always seemed like sound design and songwriting are tightly intertwined in Garbage. . . .

DE: Sometimes when trying to find a sound on a keyboard, you start scrolling through presets going "no . . . no," but as soon as you put a pedal inline, you go, "Wow, cool!" It's rare that we'll just play a preset. It's not so much tweaking within a synth, you have to do something to f*** it up, make a keyboard sound like a guitar, or some such thing. We used SoundToys Decapitator on a lot of stuff also. Some of the drums on "Blood for Poppies" are just hammered through that. A lot times on keys or Shirley's vocal, we'll start adding that in because you can really manipulate the top and bottom end with the lowpass and highpass controls—you can totally change the harmonic content. We like to do that a lot! ♫



Watch a tour of Garbage's live gear with Butch and Duke!
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ROB SHANAHAN

MILES ROBERTSON

On Crafting Piano Sounds for Adele

BY MICHAEL GALLANT

ADELE'S TIMELESS VOCAL STYLE HAS WON CHEERS AND TEARS FROM FANS across the globe, not to mention six Grammys in 2012. Supporting the superstar's touring efforts are the powerful chops of Miles Robertson, who plays keyboards, directs the band, triggers backing tracks, and breaks hearts with the wistful arpeggios of "Someone Like You" night after night. Here's what Miles had to say about tweaking the right piano sounds from twin Yamaha Motif XFs, keeping tunes fresh after months on tour, and growing into stardom with one of the biggest acts in the world.

How has working with Adele evolved since you started playing with her?
With Adele, what you see is what you get. I've been working with her since 2008, before her mega-stardom, and in my mind, she hasn't changed. The band is still a very cohesive unit and everyone is still very down to earth. Both her first album [*19*] and this new one [*21*] are just reflections of who she is and what she's feeling—not every artist is able to fearlessly express him- or herself like that, and it's very cool to work with someone who can.

Did you use stock piano sounds on the Motif XF or program your own?
I worked with a great programmer, Paul Stoney. Early in the tour we used stock sounds, but I'd go on YouTube and look at footage shot by the audience or listen to recordings taken from the mixing board. I quickly heard that the piano needed to be a lot meatier, especially when we were performing in theaters and amphitheatres, so when we had a break between the U.K. and U.S. tours, we went in and tried to customize piano sounds for each song in detail. Each song needed a different piano sound, so we started with stock sounds and tweaked EQs and reverbs, trying to make them as perfect as possible within the rig, as opposed to leaving it to the front-of-house mixer to get the sound right.

Did you tweak the sounds from show to show?
Depending on the type of show, sure. I was always

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Miles' Stage Rig

"When I toured with Adele for *19*, I used a Wurlitzer 200A and a Roland Fantom-G," says Miles, who replaced the Fantom with a Yamaha Motif XS8 mid-tour. "We also had a second keyboard player who used a Fender Rhodes and a Yamaha Motif. Now, *21* is a completely different album with completely different sounds."

To take *21*'s piano- and Hammond-heavy palette on the road, Miles chose a Yamaha Motif XF7 and XF8, both tucked inside an upright piano shell. "A real piano would've been a nightmare to maintain, and the Motif is awesome at acoustic pianos," he says. "Just for Adele's performance at the Grammys, I used the Yamaha U1 silent piano triggering an off-stage XF7." Miles also plays Hohner melodicas on tour. He uses an M-Audio Axiom Pro 25 to trigger backing tracks, which reside on a MacBook Pro running Logic Pro 9 and Fluqe's OnStage instrument host software.

checking in with the sound engineer to see if there was too much or too little reverb, and the same for low end. It was a lot of trial and error. The biggest thing is that I didn't want anything to sound digital or sterile. I'm borderline anal about things like this. [*Laughs*.]

How do you approach playing "Someone Like You" night after night?

I play very lightly on that song and don't dig in much, attack-wise—after watching past performances on YouTube, I learned that I could just lay it out there and go with the feeling of the song. I don't know how many times I've played it live, but the vibe is always different and it never gets boring. The tempo may vary slightly — we do that one completely live with no backing tracks. That song is the most exposed and puts the most pressure on me to execute my parts well, but it helps to just think about giving Adele a great foundation for her singing without being intrusive.

What were some of your pre-tour duties as musical director?

I worked on choosing which stems from the album to incorporate as backing tracks—very minimal elements like strings, percussion, and backing vocals—and helped edit, mix, and EQ them for live performance. I also communicated with Adele to see how best to execute her ideas and build a set list. She and everyone in the band had a wealth of experience, so it was never "my way or the highway." Every musician had a lot to bring to the table.

What advice can you offer to keyboardists who want to tour with superstar acts?

Practice is one thing, but the actual dynamic of performing is another, and it's equally important. It's easy to play something at your house by yourself. When you're onstage trying to execute it in front of people, it's a different thing. Nothing beats connecting with an audience, whether it's 20 people or 200,000, so playing out as much as possible is really important. There are so many intangibles that it can't really be taught, and you only really learn to connect with people onstage by *doing* it. It bleeds into recording as well—if you understand how to connect with people live, you'll have a lot to draw upon in the studio.

What's the most important aspect of being a successful MD?

Once you grasp that it's not about you, but instead all about supporting the artist's songs, you've already won half the battle. ♫

Video interview with Miles Robertson and Yamaha artist profile.

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Left Hand Harmonic Workout

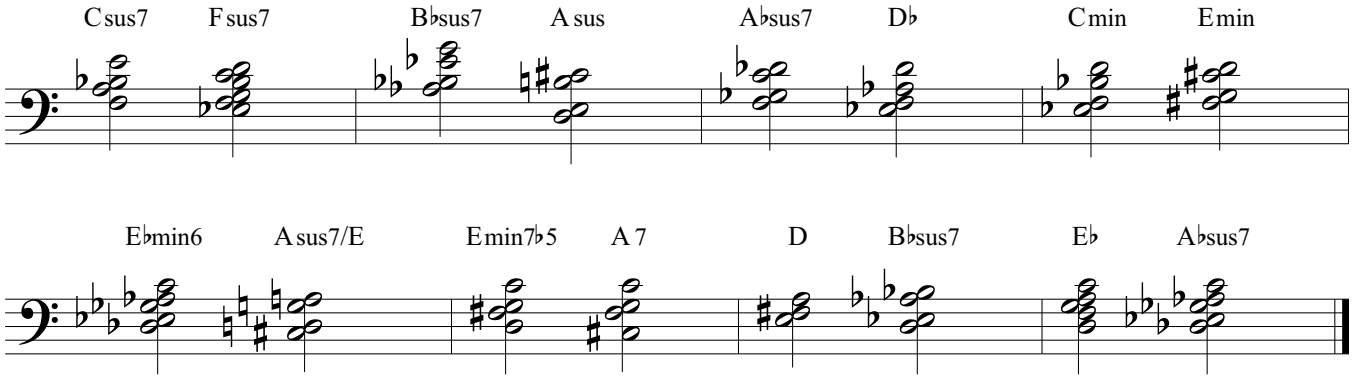
BY ELDAR DJANGIROV

I'VE ALWAYS BEEN INTRIGUED BY THE LEFT HAND. INVESTIGATING THE WAY IT CAN UNDERPIN melodic ideas is a fascination for me, and I enjoy searching for chords, inversions, and resolutions that give a refreshing aspect to the music. In this lesson, I've put together some examples that focus on the left hand, which I hope will give you fresh ideas to incorporate in your playing.

In your practice, make sure to transpose them to all 12 keys and more importantly, come to a realization that each type of inversion carries an emotional impact that begs for a logical resolution. These left-hand voicings are not the textbook formations that so many pianists use and overuse. As a musician builds up a vocabulary of resolutions, his or her intuition becomes more in tune with creating harmony that supports *every* musical idea.

1. Left-Hand Chords

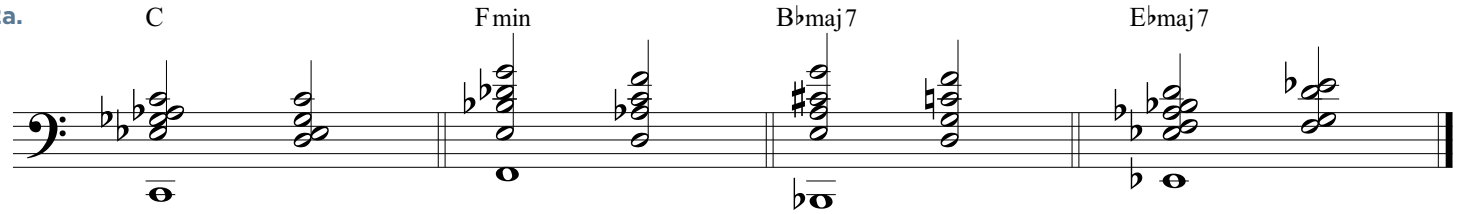
Ex. 1 illustrates some intriguing inversions of suspended, dominant, minor, and major chords. A great way to expand on these is to create a melody with your left hand's thumb. This melody will enrich the harmonic movement and make the flow more logical. These voicings presume the bass player is playing the chord roots. Remember that in many situations, you can substitute "sus" chords for seventh chords, enriching the harmonic experience.



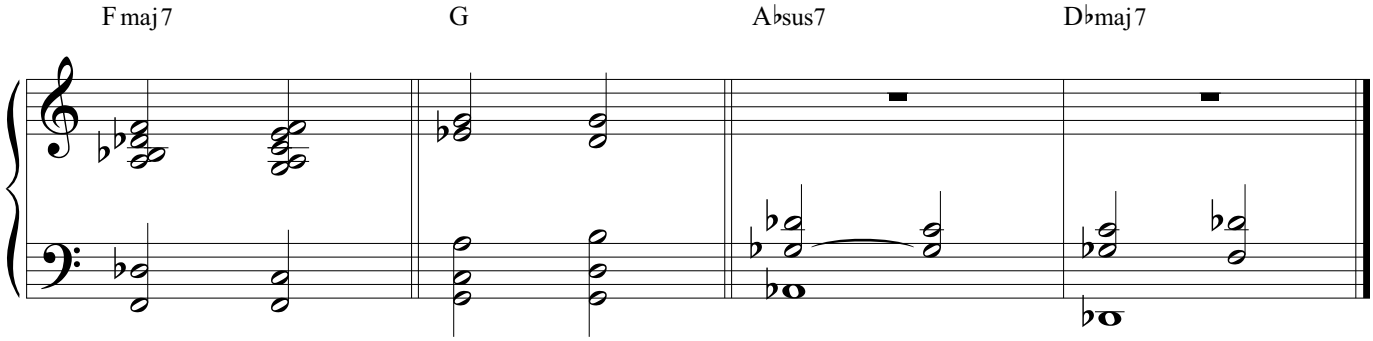
2. Resolutions in Motion

Exs. 2a–2c demonstrate different harmonic resolution possibilities. Note that the chord symbol notated in the beginning of each bar is the *target* chord resolution. The first chord *leads* to that target chord. Each of these resolutions carries an emotional logic to it. When used accurately and in logical places, they give the player control over tension and release.

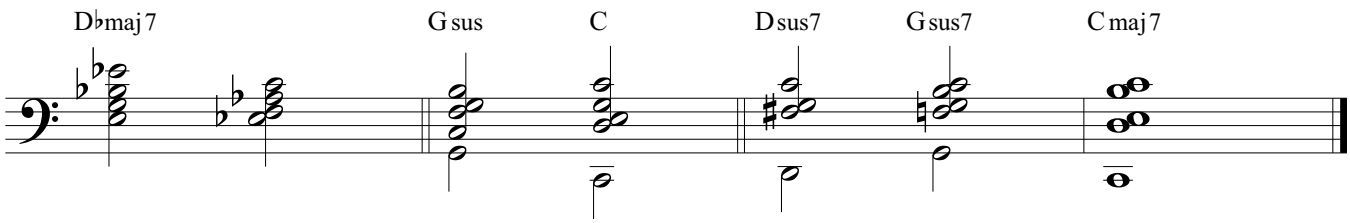
Ex. 2a.



Ex. 2b.

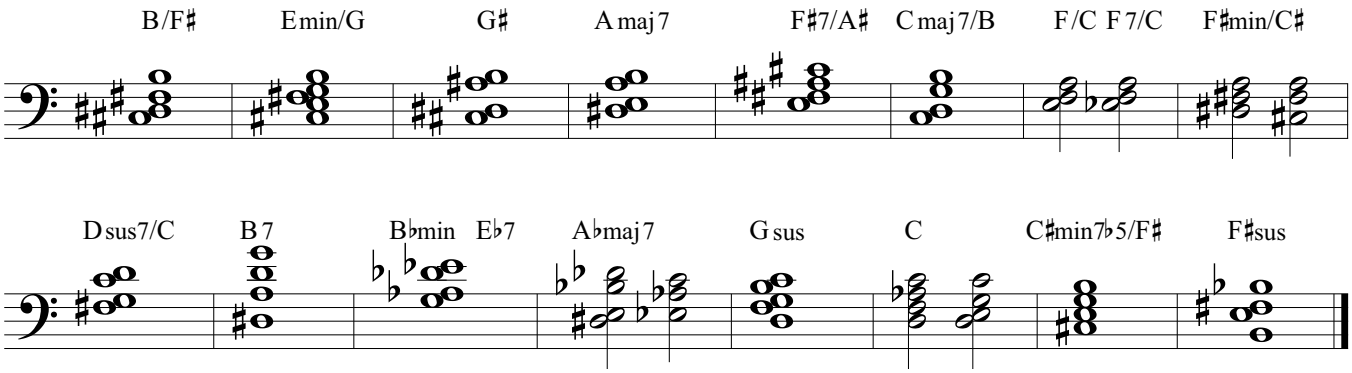


Ex. 2c.

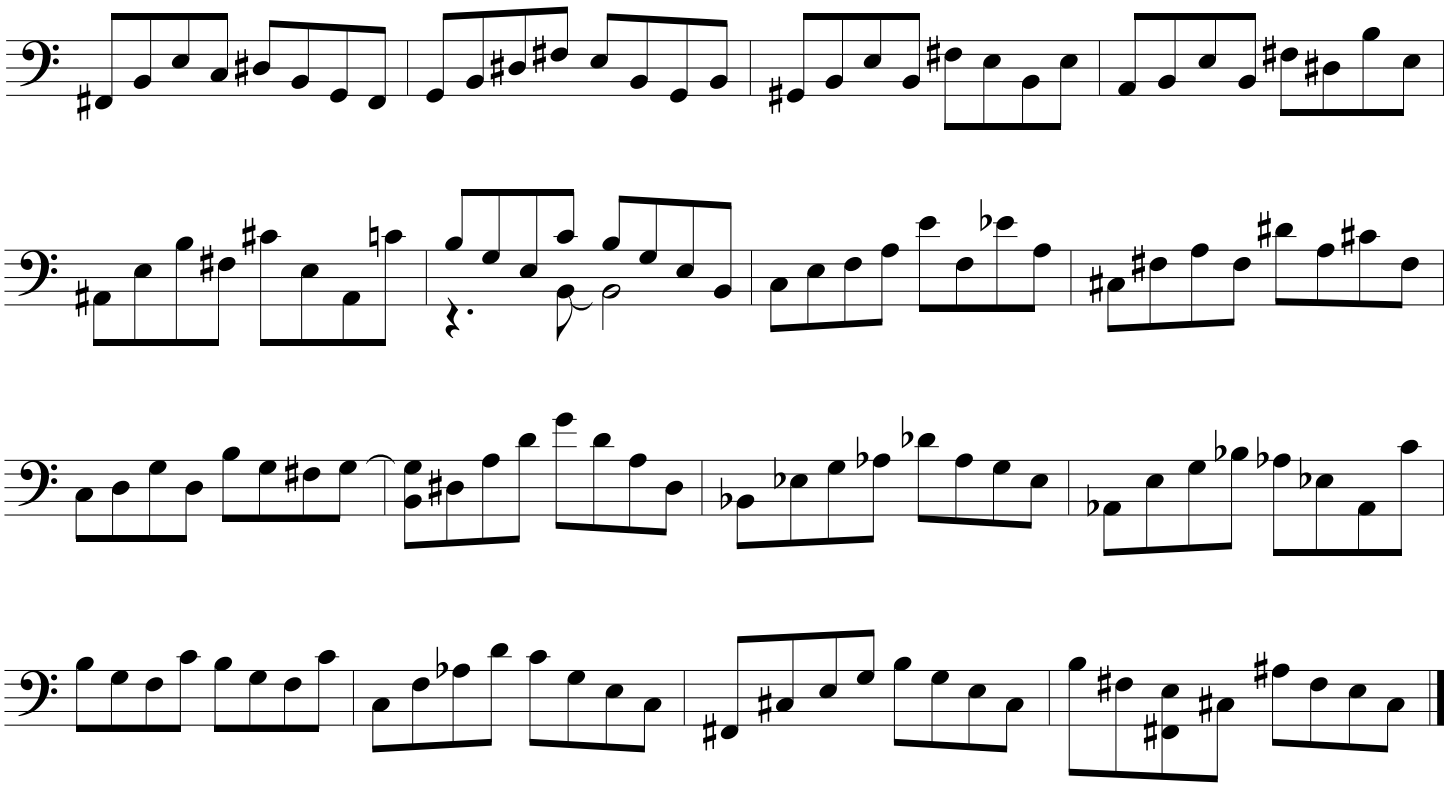


3. Progression Possibilities

Ex. 3 is a harmonic progression that I might choose to play in my left hand while soloing in the right hand. Again, I'm presuming the bass player is providing the root. The tension and release can be used to enhance the movement of the music. It enriches the way a player can build to a climax and surprise the listener by being unpredictable—albeit logically so!



4. Harmonic Patterns

Ex. 4 is a harmonic idea that I've learned from Scriabin and Brahms in particular. Both were masters of creating resolutions full of logic, wit, humor, and despair. Here, the inner voices have a way of resolving during the progression. When music resolves successfully, it always gives me a feeling of satisfaction as a listener and keeps me on the edge of my seat.

A Note on the Notes

"The audio examples for this lesson appear two ways: the first exactly as written, and the second with right hand improvisation over the left-hand harmonic structures," advises Grammy-nominated pianist **Eldar Djangirov**. His latest release, *Three Stories*, features originals, standards, and classical works. Find out more at eldarmusic.com.

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Eldar talks to us at the Blue Note and plays through the examples from this lesson.

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Hammond Chord Concoctions

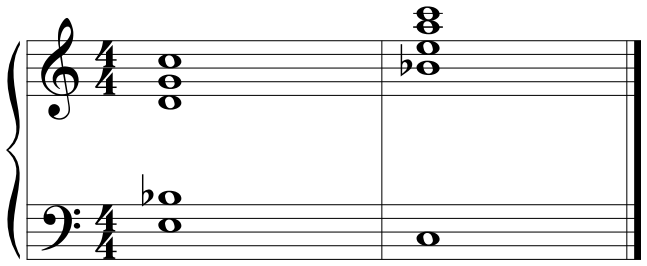
BY BRIAN CHARETTE

MANY OF MY PAST ARTICLES ABOUT PLAYING HAMMOND ORGAN HAVE FOCUSED ON IDEAS FOR SOLOING. This month, let's look at ways to voice chords. Building chord voicings on the organ is often much different than on piano. First of all, the left hand usually plays bass on the organ, so the chord voicing is usually contained entirely in the right hand. It's also common for organ voicings to be more "spread out" than piano voicings.

The following voicings will be given in the key of *C* for the most part, so that you can easily see the "math" behind assembling these chord tones into playable structures. By all means, though, learn them in all 12 keys.

1. Piano versus Organ Voicings

In bar 1 of **Ex. 1**, we see a typical piano voicing, with the left hand playing the third and seventh, and the right hand playing the ninth, fifth, and root of a *C13* chord. Bar 2 shows how an *organist* might play this voicing. The left hand is now assigned to the bass line, so the right hand has to play everything else. This is a very common organ shape, with the three lowest notes of the chord in a piano "shell voicing," with a third on top.

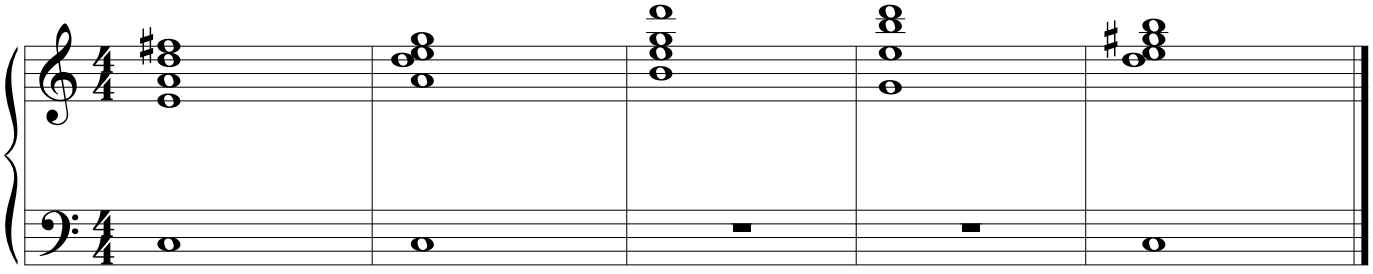


2. Major Voicings

Ex. 2 shows some intriguing major voicings for the Hammond. In bar 1, we see a voicing much like the one in Ex. 1 above; the left hand holds down the bass while the right hand plays a fourth shell structure with a third on top. This voicing is a *Cmaj7♯11*. Bar 2 is a slight variation on this—the right hand plays the following chord tones from the bottom up: 13th, ninth, third, and fifth to make a sonorous *Cmaj13* voicing.

Bar 3 is a two-handed piano-like structure for organists that play without bass players, a "drop 2" voicing of a simple *Cmaj9* chord. To build this one, take the note second from the top and move it to the bottom of the chord. Play the top three notes with your right hand and the lowest note with your left. Bar 4 is the "drop 3" version, with the *third* note from the top moving to the bottom and played with the left hand.

Bar 5 illustrates how raising the fifth of a major seventh chord gives you the *Cmaj7♯5* voicing, which became prevalent in modern jazz after 1960. For a two-handed version of this, try building "drop 2" and "drop 3" versions of this voicing.



NILS WINTHER

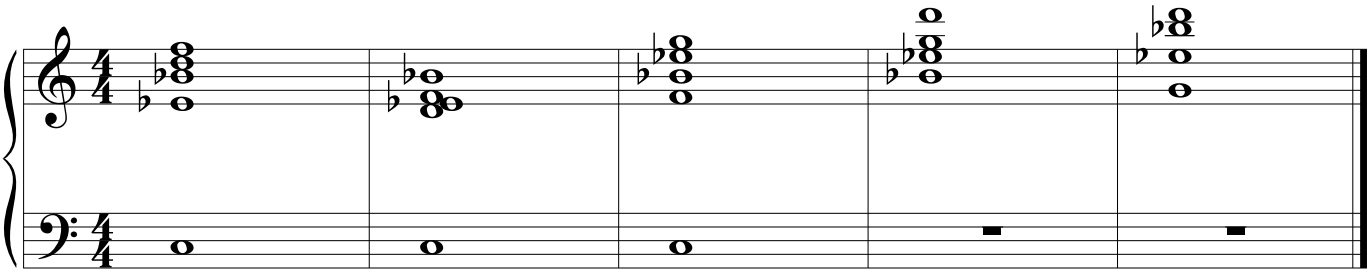
Upshift It

"Organ voicings are often written an octave higher (notated *8va*) than their piano counterparts," explains Jazz organist and composer **Brian Charette**, "because they often sound too mushy when played on organ in the octave above middle *C*." Brian has performed and recorded with Joni Mitchell, Lou Donaldson, Bucky Pizzarelli, Michael Bublé, and Rufus Wainwright, in addition to leading his own jazz groups. His latest album is *Music for Organ Sextette*, on SteepleChase Records. Find out more at kungfugue.com.

3. Minor Voicings

Bar 1 of **Ex. 3** is one of my favorites; the left hand covers the bass while the right hand plays the minor third with a *B*♭ triad on top. This creates a beautiful sounding *Cmin11* voicing. Bar 2 is a smaller, crunchier *Cmin11*. This one was shown to me by one of my teachers, Boston keyboard guru Charlie Banacos. Here, the right hand plays from the bottom up the ninth, flatted third, 11th, and flat seventh.

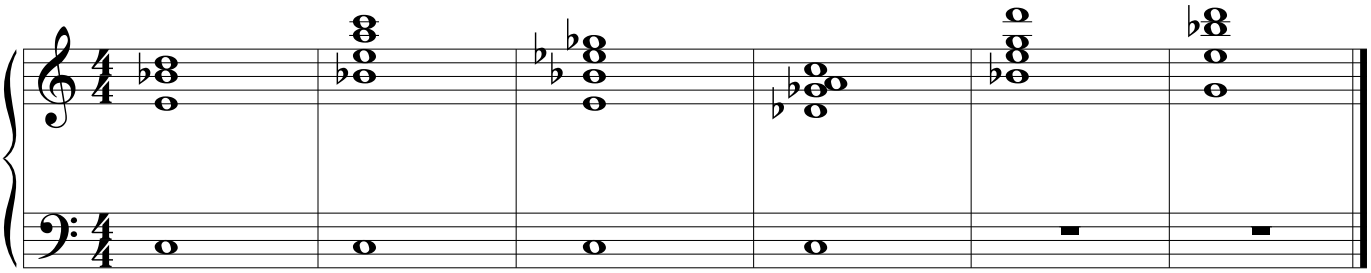
Bar 3 shows how the seminal Jazz organist Larry Young might play a *Cmin11*, using a "fourth shell" starting on *F* and a third on top. Spelled from the bottom up, this voicing reads fourth, flat seventh, flatted third, and fifth. Bar 4 is a two-handed "drop 2" *Cmin9* voicing to be used if you don't have a bass player. Bar 5 is the "drop 3" version of a *Cmin9*.



4. Dominant Voicings

Bar 1 of **Ex. 4** is a simple, tightly spaced "shell voicing" for a *C9* chord. From the bottom up the chord tones are the third, flat seventh, and ninth. Bar 2 is a voicing that the legendary organist Jimmy Smith often played. From the bottom up, it's the flat seventh, third, 13th, and root. Bar 3 is a voicing that Jimmy Smith often played at either the end of a tune or the beginning of a blues chorus. From the bottom up: third, flatted seventh, raised ninth, and raised 11th, making a *C7*♯*9*♯*11* chord.

Bar 4 is another one of my favorites; a *C13*♭*9*♭*5* voicing that the great pianist [and longtime *Keyboard* lesson author] Andy LaVerne showed me. From the bottom up, it's the flatted ninth, flat fifth, 13th, and root. Bar 5 is a two-handed "drop 2" voicing for a *C9* chord. Remember to play the bottom note with your left hand. Bar 6 is the "drop 3" version of the same chord.

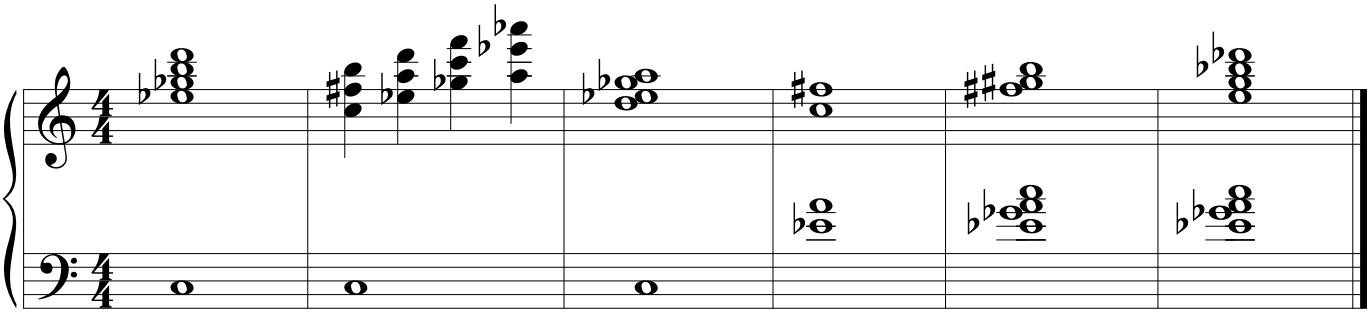


5. Diminished Voicings

In bar 1 of **Ex. 5** we see a simple *Cdim9* voicing. Because of the symmetrical nature of the diminished scale, diminished voicings can be transposed up and down in minor thirds. Bar 2 is an example of *augmented fourth* "shells" moving in minor thirds, creating slightly obtuse sounding *Cdim* voicings.

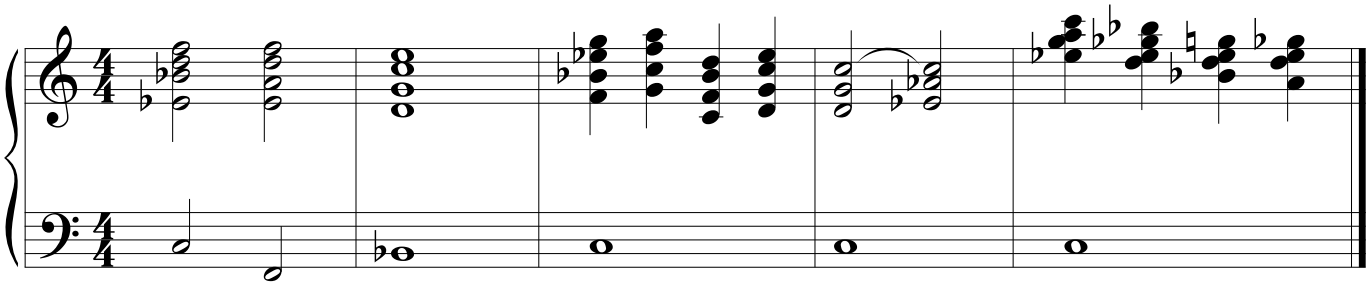
Bar 3 is a tightly spaced *Cdim* voicing, spelled ninth, flatted third, flatted fifth, and 13th. Bar 4 is a two-handed structure that does not employ the root in the bass. This voicing takes every other note and moves it to the left hand in a lower octave. From the bottom up, it's the flatted third, 13th, root, and flatted fifth (notated here as *F*♯ to keep the augmented fourth interval).

In bar 5, the left hand plays a *Cdim* voicing in first inversion while the right hand plays a *sus2* triad (*E*) a half-step above the lowest note in the chord. Bar 6 is a popular Herbie Hancock voicing that is sometimes called "double diminished." It's simply a *Cdim* voicing in first inversion with the same chord a *half-step higher* above in the right hand.



6. Patterns, Combinations, and Ideas

Ex. 6 shows some of these new sonorities in action! Bars 1 and 2 illustrate a *ii-V-I* progression in the key of B♭. Here I'm using wide chord voicings, ending with a sharp 11th on the top of the B♭*maj7* chord. Bars 3 and 4 are in the style of Larry Young. Bar 3 uses the notes of *C* dorian mode with "fourth shells" and a third on top to make *C* minor voicings. You can also try playing fourths and holding the top note to make tension in your comping, as in bar 4. Bar 5 employs the blues scale in tightly-spaced voicings that add a "greasy" element to the sound. You can even fudge some of the notes for more grease.



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MAKIKO KOBAYASHI

Sight-Reading Secrets

BY DAVID COOK

IF YOU ASPIRE TO BE A WELL-ROUNDED MUSICIAN READY FOR ANY GIG THAT COMES YOUR WAY, ONE OF THE things you'll have to get together is sight-reading. After my first few times sitting in with the outstanding Paul Keller Orchestra in Michigan, I knew I had some work to do to avoid "sounding like I was reading." So I took a regular gig accompanying voice lessons for music school singers, which consisted mainly of sight-reading tunes for 30 minutes at a time. I played jazz standards, show tunes, and opera. Before long, I started gaining the confidence to play anything put in front of me. Along the way, I found that the connection between eyes, brain, and fingers can be improved with a few quick tips. Here are some that worked for me and that I'm convinced will work for you.

Raise Your Hand

"There's no shame in wanting to get something right, so don't be afraid to speak up if you have questions about the music that's in front of you," says New York-based keyboardist and composer **David Cook**, who also happens to be musical director for six-time Grammy winner Taylor Swift. He has also accompanied acclaimed artists like Jennifer Hudson, Natasha Bedingfield, and Lizz Wright, and is a member of the Brooklyn Jazz Underground. Cook's debut album as a leader, *Pathway*, is available now. Visit him at davidcookmusic.com.

SOUNDCLOUD

Hear David play audio examples of these warm-ups.
keyboardmag.com/october2012

Identify the road map. The first things you'll want to look for are the obvious: *key signature* and *time signature*. Quickly scan the rest of the chart to see if either change during the tune. Look for any written markings, such as "solo," "lay back," "gradually building," and so on.

Look for stumbling blocks. Keep an eye out for sections that appear to be complicated at first—then try them out to see if they sound easier than they look. **Ex. 1** is an example of a line that sounds *less* tricky than it looks on paper. Don't worry about the subdivisions—focus on keeping a steady "big four" pulse. Also identify sections that might be just you, or that have you paired with another instrument in unison.

If you're given the intro or outro of a tune, you'll want to make sure you can play the part authoritatively. **Ex. 2** demonstrates this point, on an intro that's just piano alone. Play it in a strong manner to set a tone for the rest of the band when they enter.

Do your homework. Sometimes the composer will send you charts ahead of time, or upload them to a shared folder so anyone in the band can take a look. If they made the effort to do this, it usually means the music is complicated enough that you should carve out some time to look it over. **Ex. 3** illustrates this exact point. The overall structure is clear, but there's enough going on that you'd want to "woodshed" this before performing.

Ask questions. It's possible to figure some things out—like unison lines, solo sections, or other complicated passages—just by being vocal about them. Sometimes a quick description can immediately decipher the mess of notes and lines in front of you. Plus, sometimes you may be doing the composer or arranger a favor. They don't always have time to check their work, or they may have just finished a part right before the rehearsal or gig and transposed something incorrectly. These kinds of things happen all the time. Obviously, diplomacy in *how* you ask is key here.

Go for it. If you're starting to feel confident about the music in front of you, don't back down when you get to the tricky sections. Remember that you're making music, and it's supposed to sound and feel good. And if you're the only one in the band that "sounds like you're reading," then you know what you have to work on for the next time!

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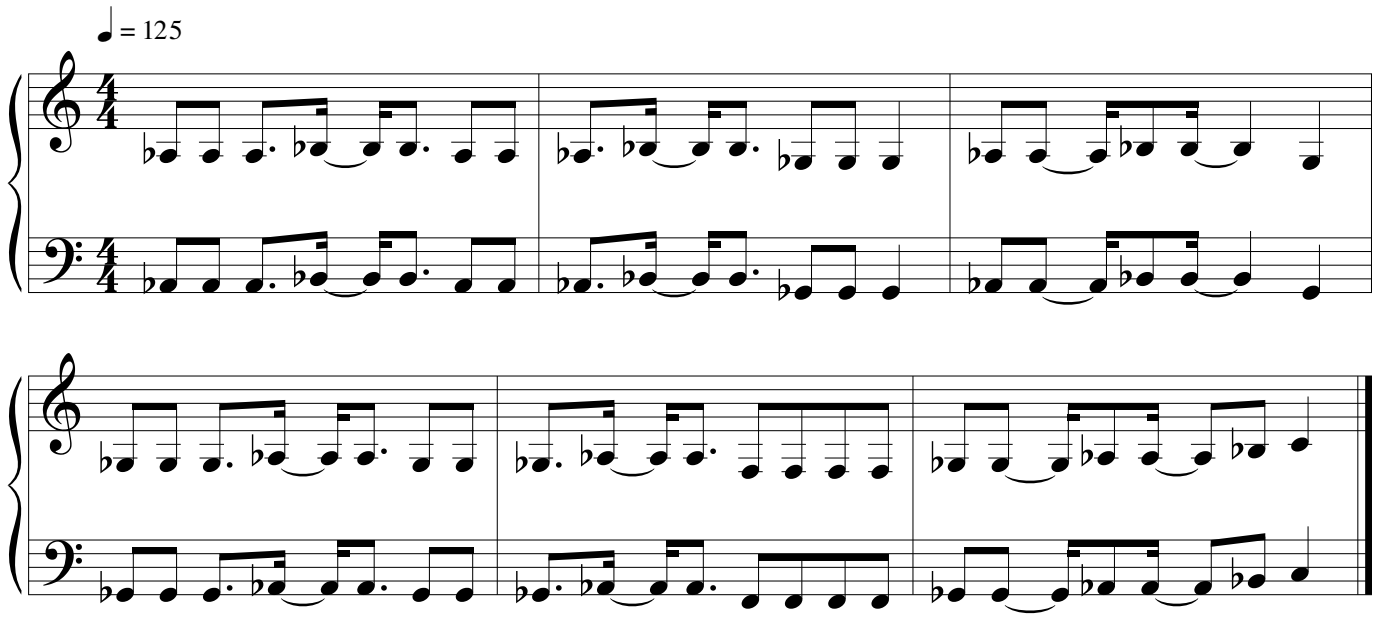
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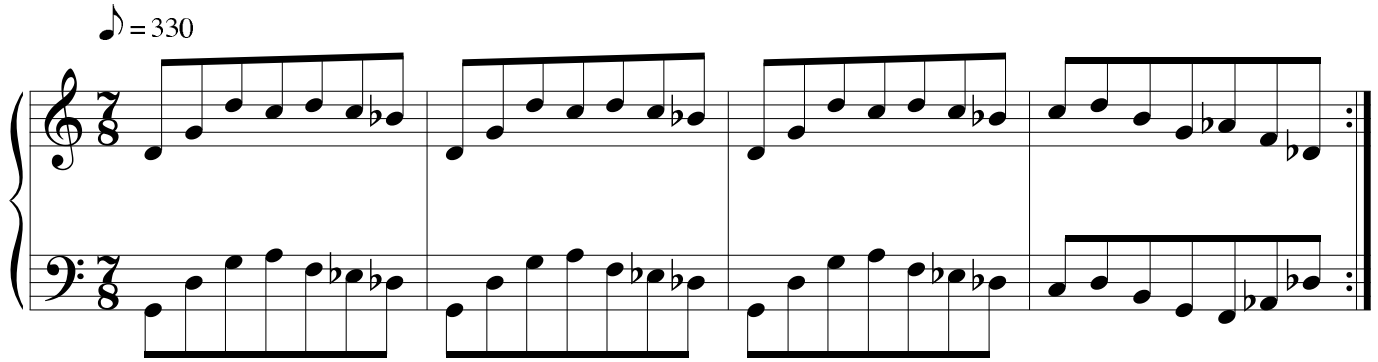

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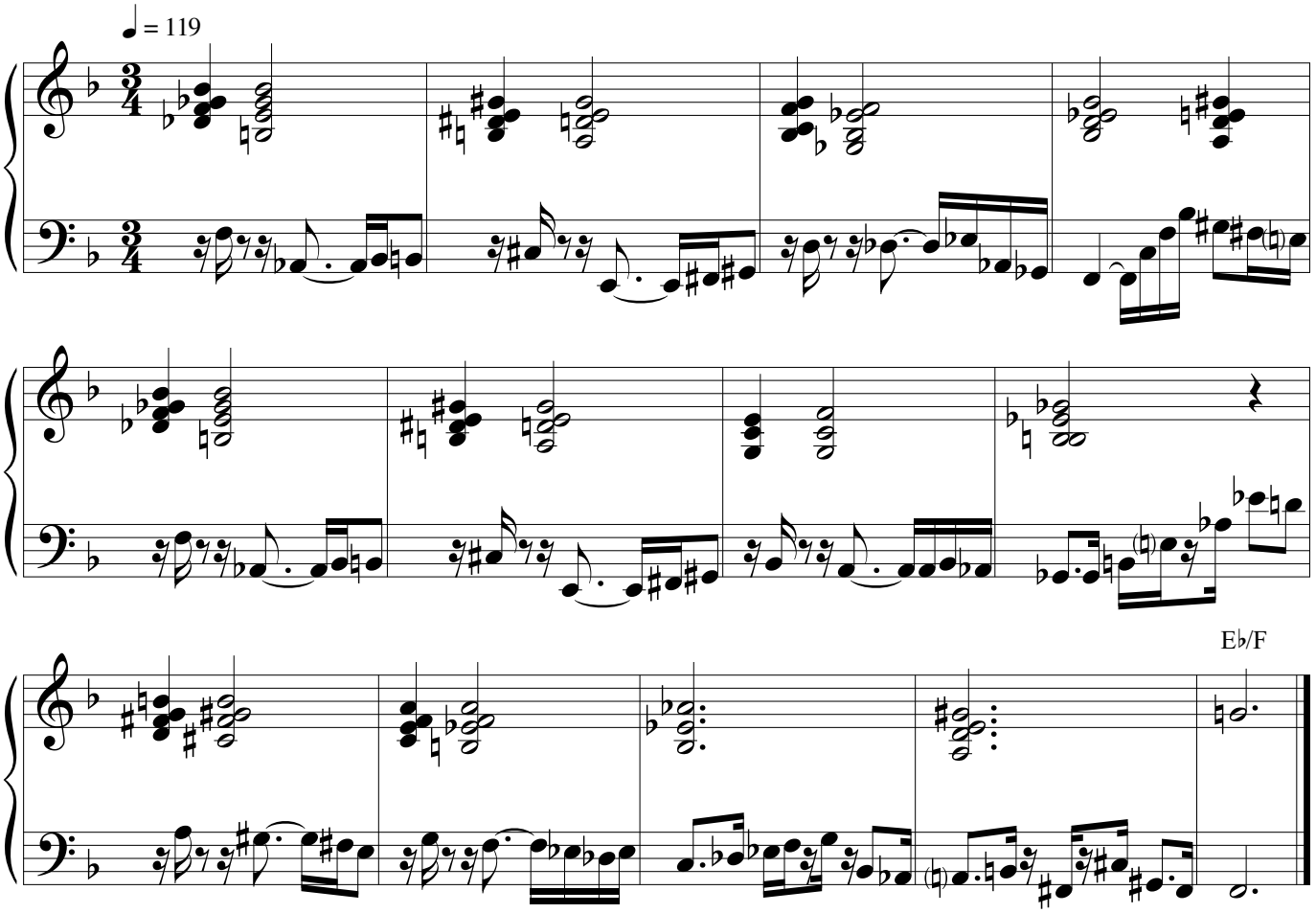
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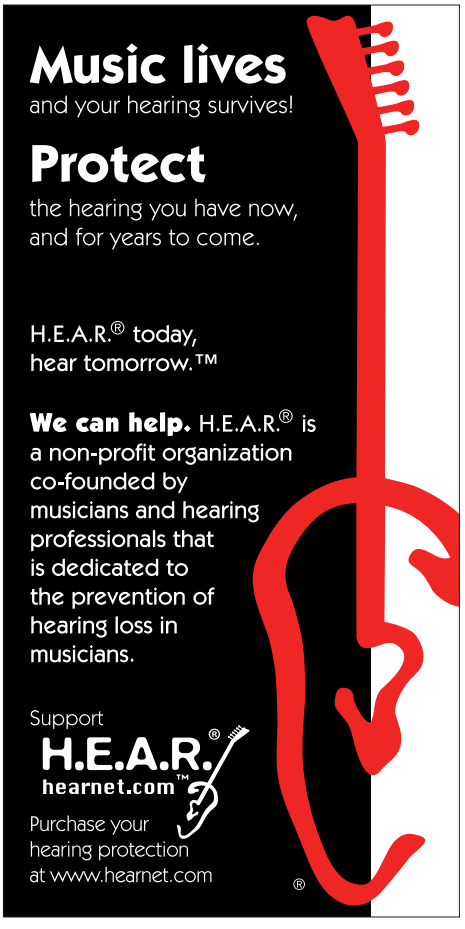
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THE VIRTUAL ORCHESTRA

Articulations 101

BY ROB SHROCK

SOUNDING LIKE REAL ACOUSTIC INSTRUMENTS IS A TASK MANY KEYBOARD players and composers are called on to execute, and it takes more than just playing the right notes and dynamics using a good sample. Understanding and effectively applying the full range of articulations can make the difference between sounding lifeless and sounding authentic.

To kick off a new series on emulating orchestral instruments, we're going to explore four general methods for getting the full range of articulations out of today's software instruments and sample libraries. In future columns, we'll dive deeper into specific sections: strings, brass, woodwinds, percussion, and more.

Separate Patches

In the old days, practically all sampled instrument patches contained just one articulation. For instance, pizzicato strings would be loaded separately from arco strings, and each required their own dedicated sequencer track and MIDI channel. Many current sample libraries still use this approach to varying degrees, although the more advanced developers are moving away from it. In order to have the most common articulations of a full orchestra available in a DAW, a composer's template can easily number in the hundreds of dedicated tracks (see **Figure 1**). To choose a particular articulation, you just arm that track in your DAW and play. The template's grouping, naming, and color-coding is paramount, as is an intimate familiarity with the overall layout.

In a DAW, this technique has its advantages. Many composers still work this way today, as it provides a more detailed visual overview of what each instrument is playing at any given moment than one sequencer track per instrument can. However, it makes creating a notation file of the score much more complicated, and relying on separate patches for each articulation is very limiting for live performance.

Key-Switching

Made popular by the original power soft sampler, Nemesys GigaSampler (later TASCAM GigaStudio), key-switching uses the keys at the extreme range of the keyboard (usually the lowest octaves of an 88-key controller) to switch between common articulations on the fly—because they're outside the playable range of the real instrument. (An analogy is how the reverse-color keys on a B-3 organ change presets.) Key-switching is used in most current soft samplers, including Native Instruments Kontakt, MOTU MachFive, Vienna Instruments, and others.

A key-switched patch loads with a number of articulations available. As an example, pressing the *C0* key could activate a solo Violin's sustained arco patch; *C#0* may activate the marcato articulations, *D0* cues up the pizzicato sound, and so on (see **Figure 2**).

An obvious advantage is that playing an instrument becomes intuitive once you're familiar with a patch's specific key-switch assignments. This is a great for live performance, as it allows a greater range of immediate playing techniques similar to an acoustic instrument. Since most common articulations occur within a single patch and sequencer track, it simplifies the DAW environment and makes notation from sequenced parts easier. A potential disadvantage is that key-switched patches often include a predetermined number of articulations whether you need them or not; so patches use more RAM and take longer

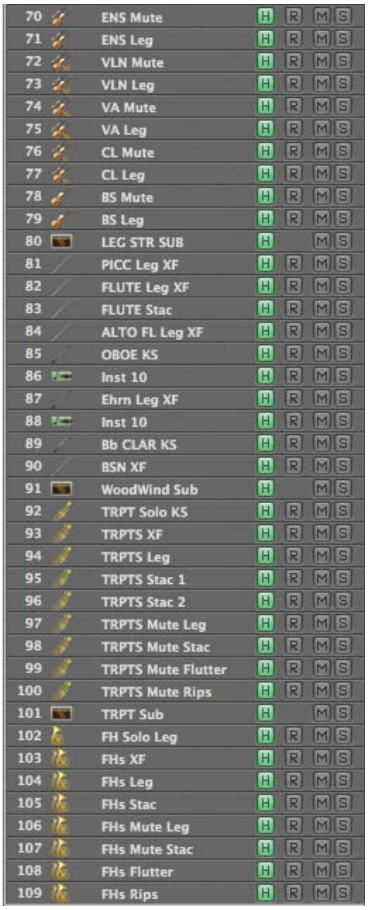

Fig. 1. A composer's DAW template might have dozens of sequencer tracks, each with one patch devoted to *one* articulation per instrument.

Fig. 2. In this solo cello patch in Kontakt, pink keys switch between articulations: arco, staccato, pizzicato, tremolo, half-step trill, and whole-step trill. Blue keys indicate the playable note range, corresponding to that of the real instrument.

Fig. 3. The advanced view of Vienna Instruments Pro. Note the elaborate switching matrix in the upper middle, which maps articulations that change automatically based on your performance.

to load than managing the individual articulations separately would.

Controllers

Common MIDI controllers—such as wheels, a sweep pedal, buttons, sliders, and ribbons—have long been used to creatively modulate openly synth-y sounds. However, they've been largely underutilized for controlling samples until recently.

As the scripting capabilities of soft samplers get more advanced, sound library developers are using these modulators in more creative ways and designing more user-friendly graphical interfaces, which greatly enhances the playability of sampled sounds. However, this also means that different libraries are implemented with different uses for the controllers, which requires the composer to learn how multiple developers think.

Since many of us mix, layer, and combine different sound libraries on a regular basis, it makes it more challenging to sequence a performance with one instrument and then change sounds to a patch from another library, as the methods for controlling a sound and switching articulations may not be implemented the same way. For instance, a patch in one library may use MIDI velocity and expression to control volume and timbre (respectively), whereas a different library's patch may ignore velocity and use the modulation wheel to crossfade between different dynamic levels.

Custom Interfaces

As the demand for greater control and playability of samples has grown over the years, several major developers have gone the route of creating their own architecture and interface. EastWest Play, Vienna Instruments, Audio Impressions 70 DVZ Strings, Garritan Aria, and several others forego the popular Kontakt, EXS24 (Logic), and MachFive platforms in favor of their own approaches to sample control and playability (see **Figure 3**). This often results in an even wider range of articulations and a more natural sound, based on analyzing your realtime touch and playing alongside more traditional MIDI controls. In the case of 70 DVZ Strings, a very comprehensive set of string articulations is always available and the entire section is controlled from only five MIDI channels thanks to a sophisticated graphical interface.

As one would imagine, this further complicates compatibility if you have go-to sounds in more than one platform. A recorded MIDI track doesn't often translate well from one platform to another, which means you'll need to play it for each platform involved. However, the benefits of enhanced control and playability often override the challenges, and we'll explore these features in greater depth in the future. ♫

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Audio examples.
keyboardmag.com/october2012

THE ART OF SYNTH SOLOING

Super Sync Sounds

BY JERRY KOVARKSY

LAST MONTH WE STARTED EXPLORING SYNCED OSCILLATOR PATCHES, ONE OF the classic sounds of lead synth playing. This month, let's get into some other programming ideas for adding variety to your sync lead sounds. Remember, our goal in this column is to give you ideas and techniques for varying the sound, adding expression, and going beyond the notes to exploit all the capabilities of your synth when soloing.

Velocity-Controlled Sync

As you explored the presets of your chosen synth looking for sync sounds, it's highly likely that you found at least one patch where your touch changed the sync character. This is usually achieved by routing velocity to the pitch of the slave oscillator, which is usually oscillator 2. Combining this velocity modulation with an envelope sweeping the pitch can produce a more expressive sync patch. When you do this, each note still gets swept to produce the signature sync sound, but your touch determines the range of the sweep.

The trick here is the interaction between the amount of envelope modulation and the amount and direction of the velocity modulation. I'll assume that you have a patch called up that already has an envelope set to sweep the pitch of the slave oscillator as we described last month.

In **Figure 1**, we see that in Rob Papen Predator, Osc 2 is set to Sync (yellow circle), and that we have a "free" envelope set to modulate Osc 2's semi-tuning for a medium sweep range (blue rectangle). Notice in the middle bottom that we have velocity routed to modulate Osc 2's pitch as well (red rectangle), but currently it has no intensity. So as I play, I get the classic sync sweep sound but my touch has no effect on the range of the sweep. As I increase the velocity modulation of Osc 2's pitch, my touch extends the range of the sync sweep, adding to what it was previously producing. So I can go from the basic state I started with and get more range as I play harder. That's nice, but I prefer to turn down the amount of envelope modulation slightly when I use the velocity modulation, so I can get less sweep when I play softer, get the basic sweep range when I'm in the middle of my touch range, and get an extended range when I play hardest. So dial back the envelope modulation and increase the velocity modulation to taste, or feel, as in **Figure 2**.

Fig. 1. Getting ready to add velocity modulation to a basic envelope-modulated sync patch in Predator.

Fig 2: Both envelope (left) and touch (right) modulate the pitch of Osc 2.

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Here these techniques in action in original audio examples.
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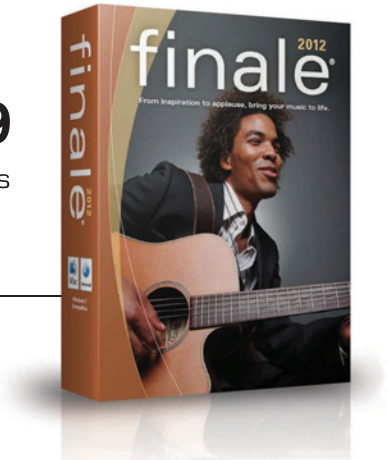

Another way to vary things based on your touch is to set the velocity modulation to a negative value. This way, as you play harder you decrease the amount of sync sweep, so your sound becomes more "straight" as you dig in, which is likely to happen when you play faster licks and phrases. When you do this you'll want to increase the envelope modulation of Osc 2 back to a higher value so your softer playing gets the range you want, as in **Figure 3**.

Notice that Predator has an "amount control" for the free envelope I'm using, and this could have been used to route velocity modulation instead of the previous modulation routing. I chose not to use it so you could more clearly see what I was doing, but it will produce the same result—it's shown in **Figure 4**. How you go about it depends what synth you are using, what modulation capabilities it has, and what modulation routings you have free.

Stepped Sync

So far we have been using smooth sweeps of Osc 2 to produce our sync sound. But you can use different types of modulators to get discrete values for each step of your modulation, which is a different and *tres* cool effect. Try routing a sample-and-hold LFO to the pitch of Osc 2 for a sound similar to ELP's classic "Karn Evil 9, First Impression, Part 2" intro, although that was actually filter modulation, not modulation of the pitch of a synced oscillator. But you get the idea: timbral change! If you're doing this within a DAW, sync the LFO tempo to your host and the effect will be in the groove of your tune.

Since this is such a dramatic effect I like to be able to turn it on and off, adding it to the previously described sync sound as desired. To do this you'll need to be able to modulate the LFO amount on your synth, and then set up a switch to toggle between a value of zero (no LFO modulation) and a higher value set to taste.

Even cooler is choosing exact values for a rhythmic sequence of modulation amounts. Some synths have step sequencers; others have an arpeggiator that can output modulation values. Either way you can get a rhythmic series of timbral changes that are each exactly as subtle or dramatic as you specify. Again, you can sync the timing to your host tempo. Check out **Figure 5** for how it's done in Predator; **Figure 6** for Arturia Jupiter-8V. ♫

Fig 3. Negative pitch modulation via velocity (right), with the amount of envelope modulation increased (left) to compensate.

Fig. 4. In Predator, choosing velocity as the "amount control" modulation source and setting a negative value will have the same effect.

Fig. 5. For stepped sync select "arp free" (instead of "velocity" as before) as the modulation source for the destination "semi 2."

Fig 6. Like in Predator, you can turn on sync for the second oscillator in Arturia Jupiter-8V and then modulate its pitch in rhythmic steps using the onboard sequencer (top).

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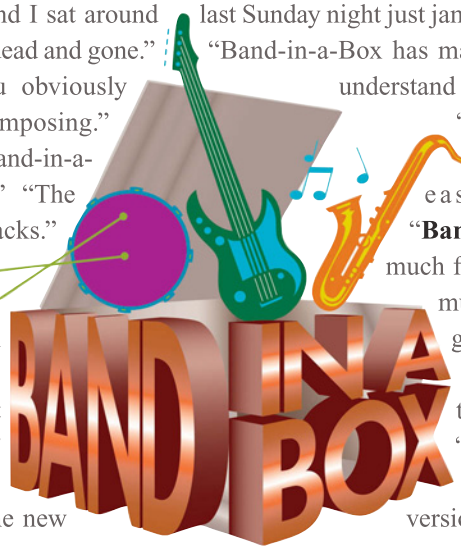

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Mano a Mono

SOLVING STEREO STAGE PIANO PROBLEMS

BY KEVIN ANKER

ALL STAGE PIANOS ON THE MARKET HAVE A RANGE OF DIFFERENT STEREO piano sounds. For that matter, so do workstations and general-purpose ROMplers. They sound great in the store, incredible through headphones, and realistic enough on the gig to make you feel like you're playing a real piano. Under ideal circumstances, stereo pianos are hard to beat. The problem is, "ideal" is hard to achieve on the gig for any number of reasons. Maybe the P.A. is mono. Maybe you're just offered one floor monitor. Maybe the room you're playing in creates phase interference when you're monitoring in stereo, which can result in a tinny sound with a thin or unnatural frequency response. These problems, among others, can conspire to make your beautiful stereo stage piano sound terrible. Fortunately, there are some ways to deal with the issue that, while they may not completely fix the problem, can help make the situation more tolerable.

Stereo to Mono

So what can you do to make it through the gig? One quick fix you can try is to use only the right output on your keyboard. Most manufacturers make the *left* output the mono summing output (it automatically provides a mono mix when no 1/4" cable is detected in the right output), so by using only the right side you won't suffer from the phase issues summing can create. The main drawback to this method is that you'll tend to lose volume from the low end of the piano the farther down the key range you play, sometimes to a very significant degree. If your keyboard uses the right output for mono summing, the opposite is true—the left output will be weak in the upper-mid and high registers. This problem exists in proportion to how pronounced the "lows to the left, highs to the right" panning is on your piano patch—better stage pianos have learned to keep this subtle.

Some stereo pianos collapse to mono better than others. If the sound you hear using just the right output doesn't appeal to you, try to find the stereo piano sound that works best in mono. It really doesn't matter where you do the mono summing, whether you run from the mono jack on your keyboard or sum using a direct box or mixer—it will sound the same.

Tweak the EQ

Generally, the middle of the piano suffers the most from phase interference. These phase issues tend to muddy up the tone, sometimes severely. Typically the problems are greatest in the octaves immediately above and below middle *C*. Some stage pianos or mixers offer a sweepable mid frequency in their EQ. Try dialing it in somewhere in the 150-500Hz range and cutting some of the offending frequencies to clarify the midrange. If your keyboard only offers graphic EQ, try tweaking the midrange controls on your mixer and/or your

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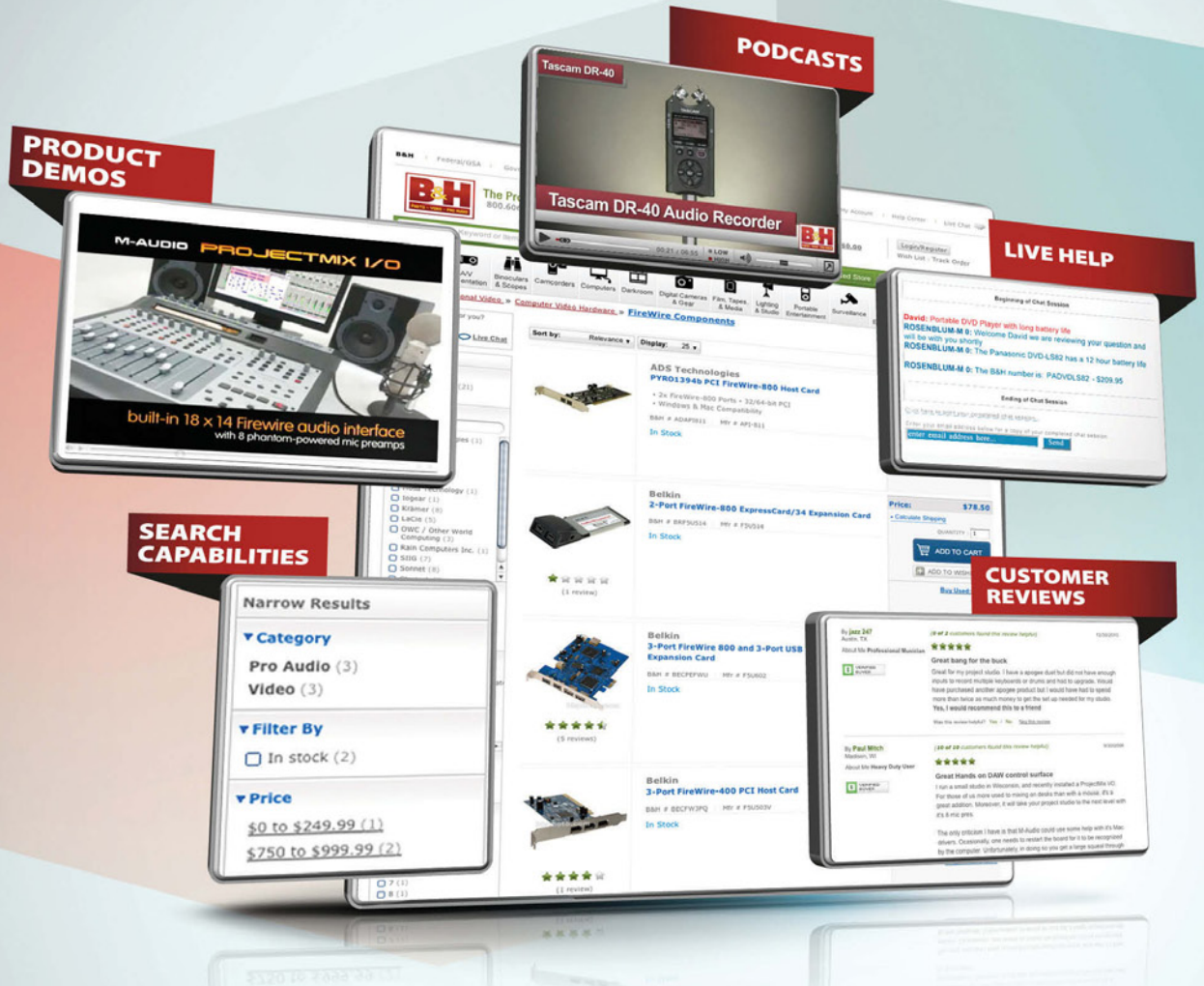

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monitor. If you're able to run stereo, but are suffering from phase issues in the room, moving your speakers a little may help, and judicious EQ can also clarify the sound. While these techniques can help you deal with issues you may encounter with stereo piano sounds, there is one other, more effective option to check out.

True Mono

There used to be a time when sounds from a digital keyboard were all mono. The keyboard may have had stereo outputs, but if the sound could be used in stereo, it was simply the effect of panning the mono sound across the stereo spectrum. If you used the keyboard's mono output or summed the signal externally via a mixer or the P.A., nothing devastating would happen to the sound—because it was monaural from the start. The sounds themselves, on the other hand, weren't the most realistic. With storage ranging into the megabytes, and now gigabytes, becoming increasingly inexpensive, it became possible to create much more detailed piano samples, and make them true stereo.

This means that finding mono piano sounds in stage pianos is becoming more difficult. Some, like the Korg SV-1 and Roland RD-700NX, include specific mono piano samples and patches. While you lose a bit of realism using a mono piano sound, it offers definite benefits over stereo. First and foremost, you can comfortably expect that what you hear on the stage is exactly what's coming through the P.A. If there isn't a P.A. and you're just running into your stage monitor or keyboard combo amp, you've limited the variables that stereo can introduce by eliminating the stereo "sweet spot" and by providing a distinctly audible single point from which your sound originates. The net effect is that the audience is going to hear what you hear. In my opinion, these are good enough reasons to run my piano sounds in mono at all times.

While stereo may be your ideal, reality often rears its head onstage. Take time in advance of a gig to prepare piano sounds to deal with the problems you may run into with mono P.A. systems and monitoring. You can gain a little bit of control over unforeseen circumstances, helping make sure you always represent yourself at your musical best! ♫

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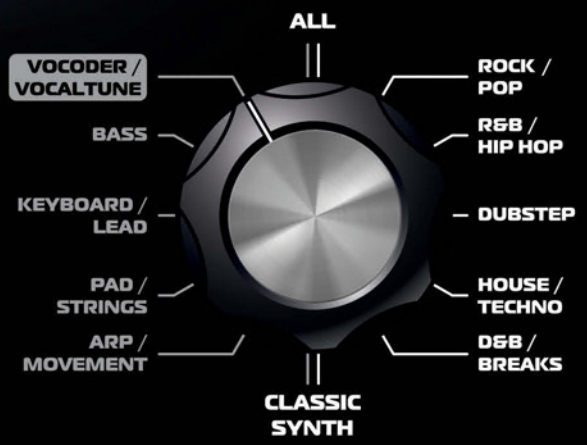
MiniNova is a compact, super-cool performance synth with the same sound engine as its big brother: the UltraNova. It comes with 256 incredible onboard sounds that you can tweak with five knobs, or totally warp with eight 'animate' buttons. It also hosts up to five effects per voice. MiniNova has an onboard VocalTune effect as well as a classic vocoder so you can recreate iconic vocal sounds from Hip Hop, Urban and electronic music.



www.novationmusic.com/bigger

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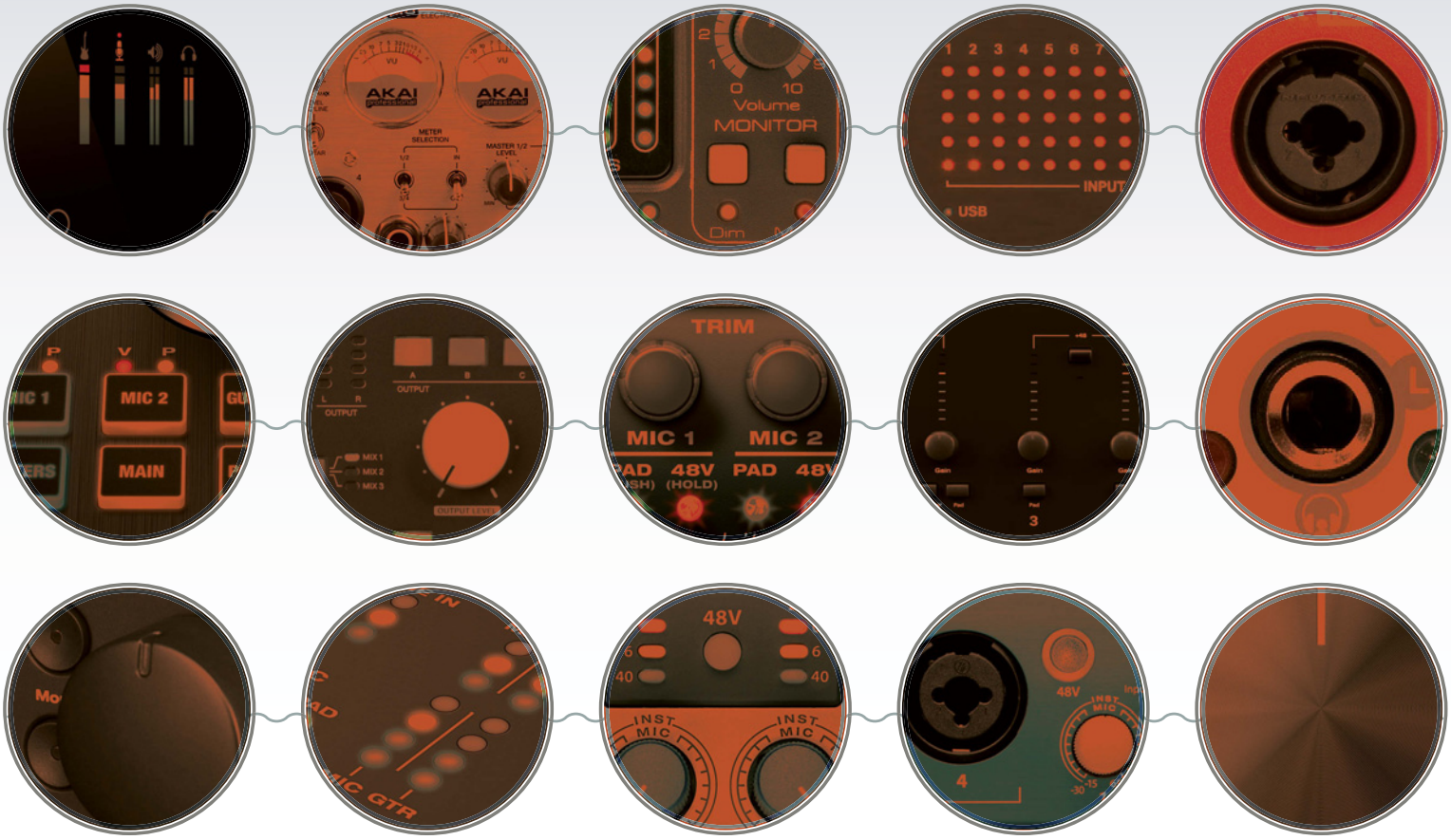


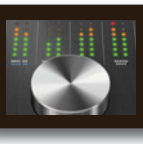
ROUNDUP

Audio Interfaces . . . for a Song

BY MARTY CUTLER

WE ADMIT IT: COMPUTER RECORDING INTERFACES AREN'T AS SEXY AS SYNTHS or virtual instruments—at least not at first glance. Nonetheless, they're the conduit between your musical concept and reality. We set out to find the latest and greatest desktop wedges and half-rack boxes under $500, though in a couple of cases something was so cool for the ducats that we raised the size or price ceiling just a little.

To put the interfaces through their paces, I ran a variety of tests using standalone synths, an electric guitar, my trusty Stelling five-string banjo, several different DAW packages, and dynamic and condenser mics including Shure SM57 and KSM32 models.



Side-by-side specs comparison chart, session notes, and audio examples of tracks recorded through select interfaces.
keyboardmag.com/october2012

Akai EIE Pro

16-bit/48kHz while the Pro goes to 24-bit/96kHz. Both sound great and are easy to use. The street price difference is not much more than $50, making springing for the Pro a no-brainer.

EIE: $299 list | $199 street
EIE Pro: $449 list | $249 street
akaipro.com

Akai EIE and EIE Pro

The retro styling of the EIE and EIE Pro is an eye catcher, but there's plenty of substance and a couple of thoughtful surprises. Both units offer the same large VU meters, which glow bright red if you overload the inputs and are large enough to read from across the room.

The standard and Pro units offer two channels fed by four analog inputs, and four outputs, with four XLR/TRS combo jacks on the front and four TRS jacks on the rear. Four inserts let you pipe your choice of outboard processing into the pre-conversion signal chain. A monitor selector switch can choose inputs one and two, three and four, or both channel pairs. In addition to the USB-B jack for computer connection, the units include three powered type A connectors, so you can connect multiple EIE units, drives, controllers, or dongles—very welcome, as USB devices tend to multiply like ants at a picnic. The EIE's five-pin MIDI jacks are welcome when I want to drag my beloved Kawai K5000 (or any pre-USB hardware synth) out of the closet.

The build is solid, with resolutely positive switching, and no wobbly knobs. Each channel offers a switch for 48V phantom power, and switches for each of the four inputs toggle between mic/line and guitar input. The hi-Z setting served my Brian Moore iGuitar well, adding more tuneful realism to my amp-modeling plug-ins.

The major difference between the EIE and EIE Pro is audio resolution: The former is

Apogee Duet 2

Heads turned when Apogee brought their highly regarded converters to affordable, small-footprint devices like the Duet 2. USB powered and roughly the same size as a hard drive, it places nearly all its I/O on a breakout cable, except the headphone jack. My first impression was that a dangling cable was more messy than beneficial, but it has its advantages in small recording spaces where things get moved around. The cable holds a pair of balanced XLR/TRS combo inputs, plus balanced 1/4" outs. An additional $100 buys a breakout box that has separate pairs of XLR and 1/4" ins, plus XLR outs.

When you download drivers, you also receive Maestro 2, a software control panel where you can set input levels, switch between line and instrument, enable phantom power, and set the sample rate (up to 192kHz). Connecting the Duet 2 by USB launches a popup that offers to set it as the default interface, sparing you a trip to Audio/MIDI Setup or System Preferences.

Apogee Duet 2

Note that the Duet 2 is for Mac only.

The crisp OLED display is easy on the eye, and in conjunction with a large center wheel, you can control levels for input, monitor output, and headphones. I was impressed with the high resolution and smoothness of the wheel—no abrupt level changes here.

The Duet 2 immediately distinguished itself with velvety highs and detailed reproduction of transients and other sonic nuances. It conveyed the rich tone and transients of my Stelling banjo without sounding tubby. Close-miked recordings of flugelhorn solos carried the embouchure noise clearly. Synth plug-ins sparkled. Although its price edges past the top end of our range, the Duet 2's stellar converters make it a great choice if quality of I/O is more important than quantity.

$595 street (no list price given)
apogeedigital.com

Avid Mbox

Flanked by the Mbox Mini and Mbox Pro (reviewed June '11), the middle-child Mbox offers two 1/4" guitar inputs on the front, two balanced XLR/TRS combo jacks on the rear, and an additional two channels via coaxial S/PDIF. There's also conventional five-pin MIDI in addition to USB.

Other than input selection, a global phantom power switch, and a 20dB pad, there's not much on the front. Despite the absence of a display, the Pro Tools Hardware menu allows a variety of assignments to the Mbox's useful Multi button, including functions such as adding tracks, record start/stop, even saving the session. You can also turn on the built-in reverb for sweetening headphone mixes (but not for tracking, which you'd be unlikely to do anyway). From the same menu, the Mbox control panel can set up reverb, sends and returns, choose the sample rate (up to 24-bit/96kHz), configure the S/PDIF,

check instrument tuning, and save your configuration as a preset. Though this button only works with Pro Tools, the Mbox otherwise showed up without a hitch in Cubase, Ableton Live, Presonus Studio One, and Reason.

The combo inputs each have a Soft Limit button that added a bit of pleasing crunch when I ran my electric guitar hot; it works well on mics to eliminate digital clipping on a vocalist's occasional too-hot note. You can mix front and rear inputs, which is handy for quick-and-dirty singer and guitar sessions, but keep in mind you can only record two channels at a time.

The Mbox's sound quality is very good, and tremendously improved over earlier-generation units. The build is hefty and solid, and you can cop one bundled with Pro Tools Express for around $499 street, or with full Pro Tools 10 at around $820 street.

$599 list | $499 street
avid.com

Avid Fast Track C600

The 24-bit/96kHz C600 works similarly to the Mbox (see page 47) in some ways, but its desk-wedge form and generous controller features set it apart. Like the Mbox, the C600 sports a multi-function button, but it's far more programmable using your host's key commands. More importantly, the transport controls worked immediately in every DAW I threw at it (not just Pro Tools), with no need for initial setup in the host. Considering the fiddly interaction of some software with even pro-level control surfaces, that's no mean feat.

Four physical inputs feed two stereo channels. As with the Mbox, you get either front-panel line inputs or rear-panel combo jacks (but not both at once) for recording channels 1 and 2. All four physical inputs have a 20dB pad and a gain knob, and each has independent phantom power. The analog outs, grouped as three stereo pairs, let you feed additional monitors; buttons select any combination of the three, making the C600 a monitor controller. Multi-segment LED meters for every input are far more helpful than a single lamp that glows red for overload.

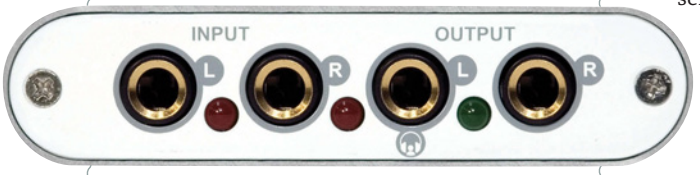
I appreciate the dual headphone outs with independent level controls; however, if you power the C600 via USB, the second headphone out, the second pair of analog ins, and the third pair of outs are disabled.

The preamps and audio quality of the C600 are solid and professional sounding. There's no soft limit feature, but there is a built-in reverb for adding to a vocalist's headphone mix. The C600 isn't metal, but its high-impact plastic feels durable.

$499.99 list | $399.99 street
avid.com

ESI U24 XL

For sheer compactness, ESI has a host of affordable audio interfaces you can tuck into a shirt pocket. ESI has historically been hailed for low latency, having once made the go-to interfaces for users of the dearly departed GigaStudio sampler.



The most suitable to keyboardists on the go is perhaps the U24 XL, which offers optical as well as coaxial S/PDIF. The unit is somewhat larger than their tiny UGM96 (see keyboardmag.com/october2012 for a review), but still small enough to put in your pocket. You can choose 16- or 24-bit resolution, but the sample rate only goes to 48kHz—still fine for many recording applications. The two balanced analog inputs are line-level only, so factor in an external preamp if you want to record mics or guitars. The U24 has control panel software for Mac OS and Windows, which you'll need in order to change the input and output levels. Windows users get DirectWire, a software scheme that lets Windows applications using different drivers receive audio streams. The street price makes it a good value, but brings it within $50 of the Akai EIE, which has the same maximum sample rate specs, no S/PDIF, but more I/O and metering. But if you travel with a hardware keyboard you want to record in stereo, and need to hear your soft synths, and don't want anything else getting in the way, the ultra-slim U24 XL is very attractive.

$179 list | $129 street
esi-audio.com

Focusrite Scarlett 18i6

Next to Focusrite's long-standing reputation for great-sounding mic preamps (which is still deserved today), the Scarlett 18i6's big draw is the remarkable number of inputs crammed into a half-rack. Although you only have a pair of analog outs, the internal mixer dishes up to 18 recording channels at once: eight analog ins, eight ADAT lightpipe, and stereo S/PDIF. Software called MixControl adds considerable flexibility when routing channels.

The Front panel holds a couple of combo jacks with gain knobs. The phantom power switch engages both mic inputs, but the software lets you mix and match line and instrument ins. To the right, a single LED for each of the eight analog inputs indicates signal and overload: not my idea of a level meter, but adequate for preliminary gain trimming.

Avid Fast Track C600

Focusrite Scarlett 18i6

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Most of the action happens in software. You can create up to six independent stereo or mono mixes for monitoring purposes, making it comfortable for multiple musicians to record at once. You can feed any physical input, or output from your host software, into any of the 18 channels. Scarlett 18i6 is a versatile, compact solution for recording multiple sources at once.

$399 list | $299 street
focusrite.com

Focusrite Saffire Pro 24 DSP

Not everyone can book time at Hans Zimmer's studio for their project; many of us make do in a spare room, garage, or basement. Likewise, we might not have the ideal monitors or acoustics, or conditions might compel us to mix using headphones. All is not lost.

The Pro 24 DSP holds a generous amount of I/O flexibility. There's a pair of combo jacks on the front (with common phantom power and independent input-gain knobs) along with two independent headphone outs. On the rear, you get a couple of line-level inputs, ADAT lightpipe I/O (which can be switched to optical S/PDIF), plus coaxial S/PDIF. Add six configurable balanced analog outs and MIDI, pour all this into the MixControl software, and routing capabilities expand tremendously. You can quickly route any input to any other, even feeding one application's audio into another.

The biggest attraction (again, next to the great mic preamps) is arguably the built-in DSP, which includes Virtual Reference Monitoring: speaker modeling that provides headphone mixes with a selection of simulated monitors in simulated rooms. MixControl also grants access to the onboard reverb, EQ, and compression, which can be routed independently to simultaneous mixes. The reverb is quite good, albeit shorter on tweakable parameters than your average plug-in. The built-in EQ and compressor are simple and effective.

The Saffire Pro 24 DSP can pull its power from FireWire or from the provided power supply—the latter lets you use it as a standalone mixer. Although it's not readily programmable from the front panel, you can use the MixControl software to set up routing and settings for reverb and other DSP. Combine the super-high quality preamps with the VRM and effects DSP, then add to that a standalone mixer with sophisticated routing, and the Saffire Pro 24 DSP is a tremendous value.

$499.99 list | $399.99 street
focusrite.com

MOTU MicroBook II

Deceptively simple on the surface, the MicroBook II packs six inputs, eight outputs, an eight-bus mixer, and built-in DSP into a package barely larger than a smartphone. Two rotary encoders provide access to levels, and serve as buttons to toggle phantom power for the single mic-pre input, a 20dB pad on one, and level control of speakers and headphones. Stereo line ins are on balanced 1/4" jacks, with a second stereo in on an 1/8" mini jack, for a phone or MP3 player. The unit is strictly USB2 bus powered.

A single XLR mic input feeds a terrific-sounding mic preamp and MOTU's high-quality converters. Live banjo and guitar tracks sounded crisp and clear without shrillness. Going in the other direction, analog-modeled sawtooth pads were fat and warm. The electric guitar input on the front panel went a long way toward convincingly piping my Brian Moore iGuitar into Native Instruments Guitar Rig.

Setup in Digital Performer was easy; the choice of track outputs included the main outs, line outs, headphones, or Aux—which plays all outputs simultaneously. Selecting (for instance) headphones for the track output in your host program kills all other outputs: a preferable approach to powering my monitors down or adding a monitor controller (the idea here is compact portability) when I record acoustic tracks. In other hosts, the track-output nomenclature defaulted to the hosts' own track names, but it all worked as advertised.

The CueMix FX app not only controls the MicroBook II's built-in EQ and compression; you can apply effects individually or simultaneously to inputs or outputs, so you can (for instance) feed effects to headphones without placing them in the recording chain.

The MicroBook II is an ideal choice for the mobile musician in need of an affordable and simple but flexible I/O. If you need to record stereo keys, guitar or bass, *and* vocals, along with hearing your soft synths, this unit will handle the job with ease.

MOTU MicroBook II

$269 list | $249 street
motu.com

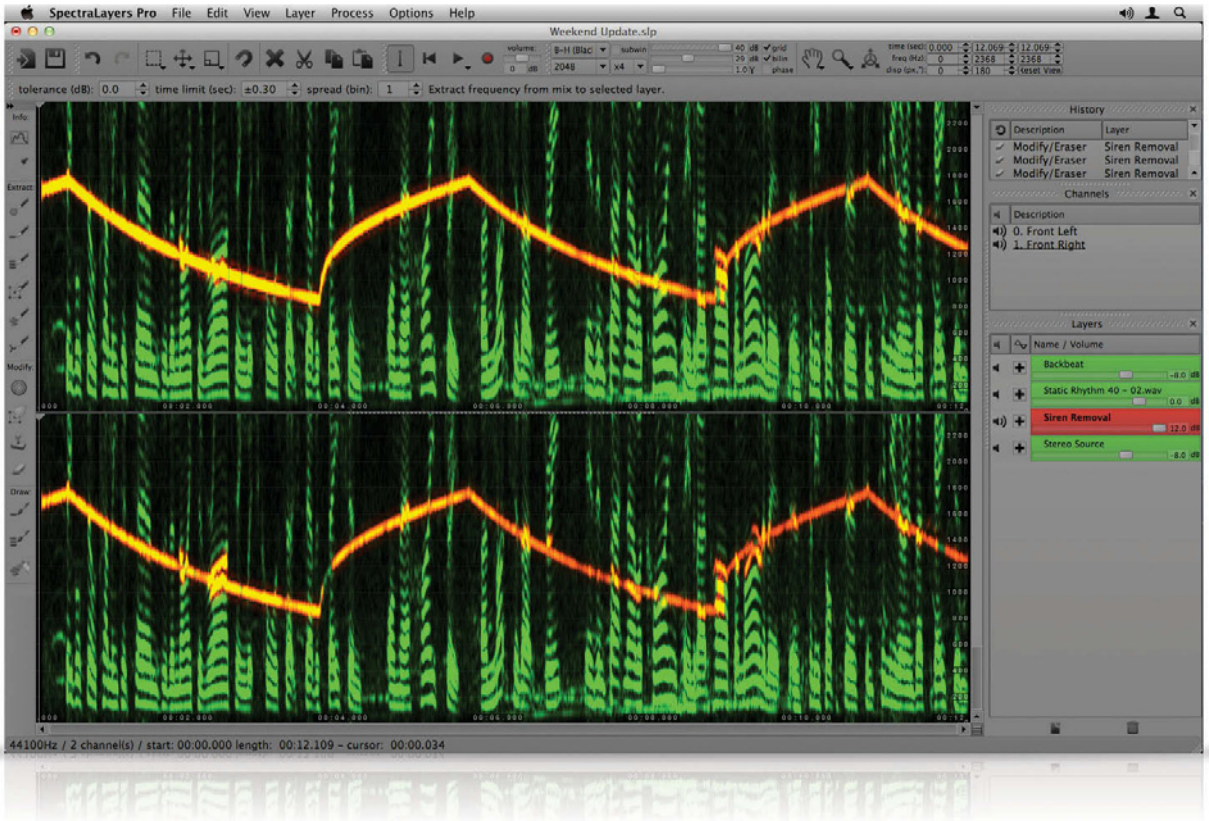
MOTU Track16

The Track16 represents an entirely new direction for MOTU. It connects over FireWire or USB, and can be powered by FireWire, but given the quantity of I/O to drive, requires a power supply (included) for USB use.

Apart from a hi-Z input for guitar and a 1/8" stereo in, all analog inputs live on a supplied breakout cable—likewise for outputs other than the two headphone jacks. Eight-channel ADAT lightpipe I/O is on the chassis itself; it supports four channels at 96kHz. At 192kHz (yes, the Track16 goes that high) only the analog I/O is active.

Focusrite Saffire Pro 24 DSP

SONY
make.believe



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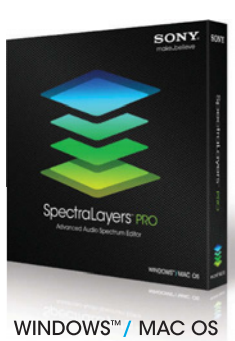

WINDOWS™ / MAC OS

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MOTU Track16

MOTU UltraLite Mk. 3 Hybrid

MOTU UltraLite Mk. 3 Hybrid

The current UltraLite represents the high end of MOTU's compact half-rack interfaces. It connects via FireWire or USB, can draw power from FireWire, and comes with a power supply for USB use. It supports audio resolutions up to 24-bit/192kHz. It's about the size of a paperback book, and hosts two mic pres, plus six balanced 1/4" analog ins, eight balanced analog outs, balanced 1/4" main outs, coaxial S/PDIF, MIDI, and a headphone out. Its complement of built-in DSP and front-panel access to all routing and DSP parameters makes it a worthy standalone mixer when you don't want to schlep a computer.

You can get to every parameter from the UltraLite's front panel, and pressing knobs inward invokes additional functions. For example, pressing either of the mic trim knobs engages the pad; pressing and holding engages phantom power. Other controls adjust effects sends and their parameters for each channel, sample rate, clock source, and lots more. All this is more visual in the CueMix FX software, but it's great to route and mix without being tethered to my computer. Keyboardists can easily set up their own keys-and-vox submix with reverb, EQ, and dynamics processing—and if your rig combines software synths with hardware, the UltraLite Mk. 3 Hybrid works well if you want to carry one box instead of a separate audio interface and mixer. Beyond all the features, the terrific sound quality makes it a top choice.

$595 list | $549 street
motu.com

Native Instruments Komplete Audio 6

Native Instruments Komplete Audio 6

It's built like it came from a heavy-gravity planet—plenty of mass despite being smaller than a paperback—yet the Komplete Audio 6 (KA6) manages four channels of balanced analog I/O, two channels of coaxial S/PDIF, and MIDI. It also *looks* great and has an easy user interface. The manual provides tons of detail, but you probably won't need it to get up and running.

The heft adds enough ballast to prevent it from getting jerked around by its cabling: a problem with compact interfaces you might perch on some blank panel space on your keyboard. The front panel neatly divides into three main areas: input, monitor, and headphone. Analog inputs

$595 list | $549 street
motu.com

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KORG

KORG.COM/KRONOSX

are a pair of combo jacks, each with a line/mic switch; phantom power engages with a rear-panel button. The KA6 is strictly USB powered.

If latency while recording is an issue, a button toggles direct monitoring of your pre-conversion signal; hold it a few more seconds and the unit cycles to select either or both of the two output pairs' signals. A second button toggles between stereo and mono output, which is handy if you need to check for phase issues.

Sonically, the KA6 competes with the other units at the top of our list with sweet-sounding conversion and excellent detail and imaging. It was so easy to set up and so portable that I used it to record a couple of tracks for last-minute national jingle sessions, which I've put clips of at keyboardmag.com/october2012. Native Instruments KA6 easily bridges the gap between convenience and sonic excellence.

$249 list | $229 street
native-instruments.com

PreSonus AudioBox 44VSL

The AudioBox has a solid, all-metal build and can sit as easily in a half-rack space as on your desktop. The I/O scheme is easy to understand: Inputs are on the front, and all four outputs (plus a separate main out and headphones) are on the rear. Four combo jacks grace the front; the 1/4" ins of the first two are suitable for electric guitars and other high-impedance signals, and the second two are for line-level signals such as keyboards. The Class-A preamps sound superb, and are the same as in PreSonus' flagship StudioLive mixers (see page 64). The phantom power button is global, so take care not to use anything that doesn't like phantom alongside anything that needs it. The AudioBox connects via USB but requires the included power supply. In addition to separate volume controls for the headphones and main outs, a mix knob blends between the analog inputs and computer playback for zero-latency monitoring.

VSL (Virtual Studio Live) gives you the equivalent of the StudioLive's "Fat Channel." This can apply independently to channels and busses, and includes EQ, compression, gating, limiting, and more. There's also included reverb and delay, both of which sounded great. EQ was easy to set up, with sweepable mids and a choice of sweepable or shelving for highs and lows. You can use the DSP as "courtesy" effects that aren't printed, or track with the Fat Channel (but not the reverb or delay) inline. These aren't one-size-fits-all channel strips, but more like flexible, configurable plug-ins without the CPU drain.

The VSL app's browser hosts a slew of useful presets listed by application: recording guitars, ducking music under voice-overs, and plenty more. Much like in PreSonus' Studio One DAW, you simply drag-and-drop the preset from the browser to the relevant channel or bus. As with Studio One, the workflow for setting things up to taste is unparalleled—the layout is elegant and the topology tells all. Throw a copy of Studio One Artist into the bargain, and you have a practically irresistible deal, especially at a street price of roughly $250. Last but not least, you've got to love a manual that finishes with a recipe for gumbo.

$379.95 list | $299.95 street
presonus.com

PreSonus Audio Box 44VSL

PreSonus FireStudio Mobile

PreSonus FireStudio Mobile

Don't let its size fool you; this baby may occupy half the footprint of the 44VSL, but it's armed for bear with FireWire bus power or AC, eight analog ins, two outs, S/PDIF, and MIDI.

Two inputs on the front are combo jacks, which also support hi-Z 1/4" ins for guitars, basses, or keyboards such as a passive Rhodes. Each features a gain control; phantom power affects both at once. The front also hosts main and headphone volume controls. The two mic preamps are the same Class-A type as in the StudioLive mixers. Six balanced TRS jacks add line-level input, and S/PDIF input and output connect to the rear (along with MIDI) via a breakout cable.

Interaction with PreSonus' Studio One DAW is quick and handy. Setting up cue mixes is a breeze. The manual spends a good deal of space on Studio One, if only because the FireStudio is so easy to use that there's just not that much to explain. Both this unit and the AudioBox set up as easily in Reason, Digital Performer, and everything else.

Choosing between the two PreSonus boxes is a tough call. Here, you don't get the Fat Channel of the AudioBox, but the FireStudio is bus-powered, adds S/PDIF, and since it's FireWire, is expandable via daisy-chaining more interfaces. Both come with Studio One Artist. The AudioBox 44VSL has more *mic* inputs, but the FireStudio has more inputs overall. Either is a no-brainer for the micro-footprint studio.

$299.95 list | $249.95 list
presonus.com

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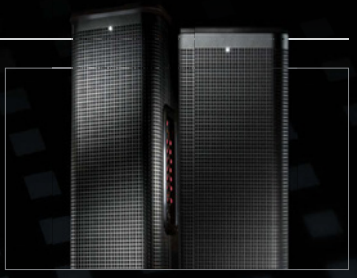

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Steinberg
UR28M

Steinberg UR28M

Steinberg has produced a few interfaces to accompany their Nuendo and Cubase DAWs. The UR28M represents one of the most recent, with workflow hooks into the company's software.

The surface is canted slightly forward, making the controls visible, with all switches on the top. All I/O, including headphone jacks, is on the rear, keeping the controls unobstructed. Top-mounted buttons toggle mic/line input levels, with a translucent phantom power button that glows red. Another button lets you choose your source. Including coaxial S/PDIF, you get six inputs and eight outputs. Outputs can feed three separate monitor mixes, and buttons at the top right can switch between each monitor/mix.

Central to the unit's DSP capabilities is the DSP MixFX software. Using this, you can program the UR28M for use as a computer-free mixer. When used with the UR28M, Cubase has its own dedicated windows for accessing the DSP Mix FX functions, and attempting to launch the standalone console will result in an error message that the USB port is already in use.

The DSP MixFX console software is for using the UR28M with any other host program—I instantiated it as a plug-in in PreSonus Studio One Pro without a hitch. If you use the mixer *effects* in Cubase or any other DAW, you'll need a software e-licenser or a dongle. Reverb-X was worth that step. It's a very sweet-sounding, programmable reverb with parameters to spare; it can launch in any VST host, along with the UR28M software channel strip, which includes compression and EQ.

The mic preamps sounded very good, with plenty of detail, and the ability to supply an independent headphone mix to a second musician is a boon. As a desktop recording interface-plus-monitor controller, the UR28M comes in at a very attractive $399 street price.

$499.99 list | $399.99 street
steinberg.net

TASCAM US-2000

The TASCAM US-2000's full-rack dimensions knock it out of micro-footprint territory, but its tremendous feature set and under-$400 street price make it worthy of inclusion here.

You get four outputs and 18 simultaneous inputs including eight mic inputs—a front-panel pair sport combi jacks for electric guitar or bass. Phantom power affects mic inputs in pairs, and you can monitor each pair of channels separately or as a linked stereo pair.

For zero-latency monitoring, a knob mixes direct monitoring of the inputs with the computer output. Uniquely, a knob governing overall input level is handy if you're recording a live band and need to dial everything back at once.

It's supremely important to get good levels in a digital recording system. So it's great to see a five-segment ladder LED for each input and output channel as opposed to the single green-or-red LEDs common at this price.

The rear panel is armed for bear, with the remaining six mic inputs on XLR jacks, and six balanced line inputs in switchable mono or stereo pairs. Each pair can be set to –10 or +4dB. A pair of insert jacks for the two combi inputs is a plus if you want to add an outboard compressor or an effect.

Software drivers and the control panel were quick and easy to install, and once I was up and running, the mic pres sounded quite good. My banjo sounded fat and rich, and plugging into the hi-Z jack with my iGuitar's piezo pickups produced a detailed, almost acoustic tone, suitable for clean rhythm tracks. Bottom line: The US-2000's I/O and seriously versatile features make it worth making room for in your rack. ♫

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TASCAM US-2000

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Weather in Baton Rouge at time of making this ad: a sizzling 98°. But nice by September for PreSonuSphere.

AKAI PROFESSIONAL MAX49

BY FRANCIS PRÈVE

THE KEYBOARD CONTROLLER MARKET IS COMPETITIVE LIKE THIS summer was a little warm. There are so many products that it's never been a better time to shop around, but the range of options is daunting. Akai's new MAX49 is a top contender for your hard-won dollars. It offers a boatload of truly useful features, from MPC-grade pads to perfectly located transport controls to backlit touch-strip faders—and in an interesting twist, it's also has control voltage and gate outputs for interfacing with your vintage (or new) analog synths or modular gear.

Build and Action

When I first unboxed the MAX49, I was struck by its robust construction. In addition to its brilliant candy apple red case, the thing is built like a tank.

The keyboard itself is a 49-key, semi-weighted affair—with aftertouch. The action was a tad stiff for my taste, but I definitely prefer it to some of the mushier keys I've encountered on budget controllers. The keyboard also includes a capable arpeggiator with seven patterns: up, down, two up/down modes, a mode that double-hits each key (for trance and '80s effects), random (great for Duran Duran covers), and chord repeat. There are also parameters for octave range, gate time, note value ("time division" in Akai parlance), and MPC swing feel. In practice, this is a great little arpeggiator that will serve both EDM producers and cover bands quite nicely.

Pads

The MAX49's drum pads are backlit and light up when tapped. Flanking the pads on either side are additional buttons for switching between four user-configurable pad banks, and two indispensable MPC features: full-volume hit and adjustable note-repeat. In addition, there are switches for the arpeggiator features mentioned previously.

The pads themselves feel great and can be customized for various playing styles thanks to the inclusion of parameters for both velocity sensitivity and a selection of velocity curves. It's also worth keeping in mind that while most users will be using the pads for drum programming or live triggering of samples, they can also handily toggle various DAW functions (like solo or mute), so if you program your drums using different techniques, the pads won't go to waste.

Vyzex Editor

While I had little difficulty zipping around the MAX49's LCD for basic editing, the free software editor is a godsend for elaborate studio and performance rigs. Every available parameter is easily configured, and there are also sys-ex librarian tools if you have extreme patch organization needs. Note the pop-up—you can select protocol and behavior for *each* fader independently!

Mission Control

In the center of the front panel is a four-line LCD that provides ample navigation of the MAX49's presets, menus, and parameters. Beneath that are five large transport buttons for your DAW. It's amazing how important placement and design can impact the usefulness of a feature as seemingly small as this. Having the transport front and center makes a world of difference—and the larger scale and spacing of the buttons is a boon for players with sausage fingers.

There's also a nice little collection of control templates for all of the major DAWs including Ableton Live, Pro Tools, Reason, Cubase, Logic, and FL Studio, so users who want to dive right in can simply dial up the corresponding preset.

Fader Strips

The MAX49 includes eight touch strips that replace the mechanical faders and knobs found on most other controllers. While some users may prefer true faders, the touch faders offer performance possibilities that are impossible via hardware. Unlike a fader, you can tap any spot on the strip and immediately jump to that value. This makes for interesting performances when controlling synth parameters like filter cutoff, wavetable position, or FM amount.

Six behaviors are configurable for each fader independently, including Mackie Control and HUI modes, which are essential for many of the DAWs that the MAX supports. Some of these can

Snap Judgment

PROS Solid keyboard feel. Aftertouch. MPC-grade pads and inimitable MPC swing. Built-in arpeggiator and step sequencer. Includes control templates for all major DAWs. CV/gate outs for analog synths. Both onboard sequencer/arpeggiator and incoming MIDI over USB translate to CV outs.

CONS Has only one CV and one gate out—more would make it better for controlling vintage and modular synth rigs.

work in bipolar fashion (zero is at the midpoint with positive and negative values on either side); this works exceedingly well with center-detented synth parameters such as panning and detuning. In addition to these different types, you can set each touch fader to absolute (jump) or two different relative modes that add or subtract to your value based on where you touch the faders. A row of LEDs next to each fader clearly indicates what your values are at any moment.

At first glance, eight faders may not seem like enough for high-performance acrobatics. Fortunately, you get four bank selectors so you can quickly switch fader groups. Until people start growing more than four fingers on each hand, this feels adequate to me.

Under each fader is an additional assignable button that can be used for muting, soloing, or toggling parameters. These buttons also turn steps on or off in the sequencer, or change time division (note values) for the arpeggiator and MPC pad repeats.

Step Sequencer

Speaking of sequencing, the MAX49 has a really cool implementation, with the fader bank switches selecting between four banks of eight steps, resulting in up to 32-step patterns. These patterns can be assigned to MIDI parameters or the CV/gate, for 303-style sequencing of vintage analog gear. I tried this with both my Oberheim SEM and Roland SH-101 without a hitch. The fact that the steps can be edited in real time as the sequence plays—as well as toggling steps on/off with the buttons beneath each fader—gives the ultra-modern MAX49 a decidedly vintage flair.

I then used the step sequencer to control the filters on a couple of my modular-friendly analog gems, like the Doepfer Dark Energy and Arturia MiniBrute (to be reviewed next issue). Since both are connected to my computer via a USB hub (for MIDI), I was able to use the step sequencer to control other functions, like filter cutoff on the MiniBrute or pulse width modulation on the Doepfer. A bit fiddly, yes, but that's what modular rigs are all about: fiddling!

While I would have loved an additional CV out for assigning to the SEM or Dark Energy's filter CV in, there's only one sequence available at any given moment, so that would have minimal value. Here's hoping Akai makes a big brother (MAX61, anybody?) with additional sequencers and CVs, because this one's hella fun to use.

Conclusions

I was extremely impressed with the MAX49. Its touch-strip faders are way ahead of the curve for realtime performance. The pads are the real deal for MPC fans. The step sequencer is a blast. It works out of the box with every major DAW, and the ability to convert MIDI data from your DAW (or from the onboard sequencer and arpeggiator) into control voltage for your analog toys shows that Akai clearly knows we're living in a hybrid world. For 500 bucks, this is one controller that really stands out in a crowded market—total Key Buy material. ♫

Bottom Line

Need one set of keys that bridges your computer world and that cool voltage-controlled synth module you just scored? That's just the beginning of what the MAX49 can do.

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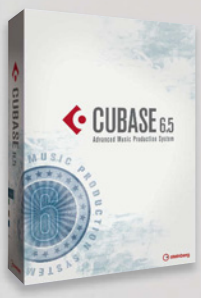

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Run Digital Performer 8 and MachFive 3 on the new Apple MacBook Pro with Retina display, control your audio with the elegant one-touch Track16, then add the latest advances in studio technology.

Apple MacBook Pro with Retina display

It's a whole new vision for the notebook

Apple designed every aspect of the all-new MacBook Pro with performance in mind. From the beginning, the entire internal structure was built to house the very best high-performance components: all-flash storage, the latest quad-core processors, powerful discrete graphics, and massive amounts of memory. Yet despite packing such an enormous amount of power into such a slim design, it still achieves an astonishing 7-hour battery life for those marathon MOTU studio sessions.

Novation Impulse

The professional USB/MIDI controller (25, 49 or 61 keys)

The Novation Impulse features a precision, semi-weighted keyboard, 8 drum pads and a full control surface. It comes with Novation's award-winning Automap (version 4), the original, most powerful, and now, easiest-to-use control software. This makes getting hands-on with Digital Performer and your plug-ins fast and simple.

MOTU Track16

Desktop audio I/O with effects and mixing

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MOTU

ToonTrack Superior Drummer 2.0

Virtual drummer engine with legendary sounds

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Genelec 8040A

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PRESONUS

StudioLive 16.0.2

BY RYAN COSEBOOM

I CAN REMEMBER BEING A YOUNG SONGWRITER INTENT ON PRODUCING AND performing my own music. My budget was smaller than the polyphony of most of my synths. Each piece of gear I purchased had to be versatile, sometimes in ways the manufacturer hadn't necessarily intended, and I squeezed every last drop of functionality out of it. The PreSonus StudioLive 16.0.2 is a digital mixer that anyone in a similar situation should investigate.

Overview

The 16.0.2 shines as a 16-in/out audio interface for your DAW or a mixing desk for your small P.A. Since it can be both at once, you can do your live mix for the club while recording a pre-fader session to a FireWire-attached computer—all with a device that's just a little bigger than your laptop. FireWire is a mixed blessing. Many of the latest ultrabooks are abandoning it in favor of USB3 and (on Macs) Thunderbolt. On the bright side, you can daisy-chain PreSonus FireStudio interfaces to the mixer for more inputs—something you can't do with USB.

The main outs come in XLR, TRS, and summed mono, and run in parallel, meaning you can send your signal to five destinations at once. This is useful in clubs where there are multiple rooms or zones to fill with live sound. Four aux outputs are all configurable pre- or post-fader,

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Photo: Martin Doering, www.the-organsite.com

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Around back are 12 Class A mic preamps on XLR inputs (actually 13, as the talkback input uses the same preamp) plus 1/4" line ins. Channels 9–16 are grouped in stereo pairs, with each pair having one XLR in but stereo 1/4" ins—ideal for keyboards. Pairs 13/14 and 15/16 add RCA ins for consumer and DJ gear.

Included Software

PreSonus throws in all the applications you'll need to max out the potential of the 16.0.2. Not only do you get the Studio One Artist 2 DAW, but also Capture—a streamlined program for live recording—and Universal Control with Virtual StudioLive. This controls all the mixer's features from your Mac or PC (and makes managing stored setups easier with its browser), which you can extend to wireless control via the very thorough SL Remote iPad app. (You can't control the StudioLive directly from an iPad; you need the attached computer as an intermediary.) This lets you listen from trouble areas you might not catch from behind the console. Another app, QMix (iPhone/iPod Touch) controls what's in each of the four aux sends, and since multiple instances can talk to Virtual StudioLive at once, iPhone-toting band members can dial in their own monitor mixes. Finally, Virtual StudioLive incorporates a streamlined version of Smaart, a set of analysis tools that graphically identify problems with your mix and let you fix them using the onboard, 31-band graphic EQ.

with send knobs for each on the front panel. You also have the cool option to control certain features of the 16.0.2, including effects levels, the main output, and recall of scenes, using MIDI foot pedals.

Engaging one of the three multimode controls located at far left above the faders, then pressing the button above any fader, is how you solo or mute channels. Also here is a FireWire button that streams multitrack audio from your DAW to be mixed and processed through the 16.0.2. To the left of the first fader, the metering buttons let you view either input, output, or gain reduction due to any dynamics processing, on the channels' ladder LED strips. As the faders aren't motorized, a fourth button (Locate) displays the fader positions of a recalled scene on the LEDs, letting you manually match faders to them. You won't hear unwanted level jumps, as the faders go inactive until you exit Locate mode.

Fat Channel

At the heart of the 16.0.2 is the Fat Channel, which is where the real sound-shaping power lies. There's a single horizontal strip of knobs to save space and cost, but you get independent Fat Channels for every input, the aux and effects busses, and the main stereo out. Each includes, in order of signal flow: phase reverse, highpass filter, gate, compressor, three-band semi-parametric EQ, and limiter. Here, you also control pans and phantom power; panning has a cool horizontal LED display. All Fat Channel settings can be stored, copied, and recalled so you can call up a familiar live setup in no time. The Digital Out button sends audio post-Fat Channel to your computer should you want to print audio with all dynamics and EQ settings—leave it disengaged to record a "dry" session for later work in your DAW. Finally, a 31-band graphic EQ applies to the main output.

Snap Judgment

PROS Sounds clean and open. Very easy to learn. Sturdy build. Clear, eye-pleasing controls and displays. Can do your live sound and send a pre-fader multitrack session to your DAW at the same time.

CONS Maximum sample rate of 48kHz is fine for live work, but audiophile recordists will want higher. Lacks per-channel insert jacks for external effects.

PRODUCE PERFORM LIVE

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Effects and Monitoring

In addition to the extensive dynamics and EQ in the Fat Channel, the 16.0.2 packs two internal effects processors. Parameters show up on the LCD screen and are adjusted using the buttons and value knob directly below. The reverbs and delays included are surprisingly high in quality. Effects can be tweaked and routed easily using the large screen, and you even get a tap tempo button for delays.

A talkback channel can be routed to the aux sends that are feeding your monitors. While this is great for working with a band during their setup, it's also a way to send a room ambience signal to performers who use in-ear monitors and therefore might otherwise feel isolated from the crowd and their bandmates onstage.

Next to the talkback is the solo bus, which works in pre-fader, after-fader, or solo-in-place mode. In pre- or after-fader mode, you can monitor individual instruments or aux sends in your headphones to fine-tune your sound or troubleshoot problems—all while leaving the main output signal undisturbed. Solo-in-place mutes any channels that aren't soloed. This allows for quick troubleshooting on individual channels but, since it does mute channels in the main outputs, it's mainly useful before the audience shows up. In the monitor section, you can choose what's heard in the control room outs: FireWire returns from your DAW, solo bus, mains, or any combination of the three.

One of the most impressive things about the 16.0.2 is how clearly visual information is displayed across the 12 ladder LEDs and various backlit buttons. I found it simple to keep track of my settings across the various channels and was impressed with how easily I could see everything in a dark room.

I found it helpful to dial up a basic mix relatively quickly, saving the scene once things sounded acceptable. Then, after getting the aux sends set up for onstage monitors, I'd go back and tweak the mix, re-saving to another memory location. This let me compare two (or more) mix setups quickly—a huge bonus in a live situation.

Conclusions

I never got the sense that features were left off of the 16.0.2 to keep the price down and was often surprised at extras I wouldn't have assumed it had. Some people may be disappointed by the lack of motorized faders, but on a board this compact and "analog" feeling, I didn't miss them.

Having played loads of gigs, I know that many of the features—the aux routing, solo bus modes, and, of course, the Fat Channel—will be huge assets when racing against the clock during a sound check that's behind schedule. Gear that relieves stress and helps us achieve great-sounding recordings and performances at the same time is worth our attention. The StudioLive 16.0.2 goes a long way toward helping you meet those goals, and then some. ♫

Bottom Line

Ideal for mixing a small band or huge keyboard rig, live multitrack recording, or being the audio nexus of your home studio.

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SOUNDTRENDS Meta.DJ

BY FRANCIS PRÈVE

FOR SOME DJS AND ELECTRONIC MUSIC PERFORMERS, THERE'S MORE TO rockin' the house than beat-matching two tracks. Korg Kaoss fans twist their music with realtime effects, and Ableton users are well acquainted with the power of incorporating loops, adding drums or percussion, and playing synth riffs over existing mixes. This is why I've fallen in love with Meta.DJ for iPad. It blends real music production tools with tempo-synced track players, delivering a truckload of fun and creativity.

The basic concept is simple: You see four quadrants, each of which can contain one of the following musical devices: Track Decks, an iTunes-integrated track player; Drumtron, a drum machine; the One Shot sample trigger pads; Looptastic, a loop player with up to eight custom loops; Riser for adding rises and whooshes; or Sampl3r, a sample-based synth/arpeggiator. If you want two Track Decks, a One Shot, and a Looptastic, no problem. Want two Looptastics, a Sampl3r, and a One Shot? Go for it. Full configurations can be saved and recalled for different parts of your performance.

Once you've selected your devices, picked a track or two from your iTunes library, and dialed in some presets for Looptastic or Drumtron, you're ready to play. Everything is synced to your master tempo, including the Track Decks (in the +/- 10bpm range, their time-stretching algorithms sound especially clean), so improvising is absolutely painless. In Drumtron, you can add preset rhythms and individual drum patterns by simply tapping one or more buttons. Looptastic includes multiple faders, so you can add drum, synth, or sound effects loops to a track with simple gestures. One Shot is great for tapping out drums or triggering sound effects, and Sampl3r comes with a bunch of useful arpeggios for adding flourishes to drum-heavy compositions.

Alone, these tools would be fun for days, but SoundTrends also includes up to three simultaneous touchpad effects for each device. Tap the FX button on any device channel and it flips to reveal an X/Y pad with a massive selection of effects including filters, rhythmic gates, four different stutter/glitch effects, bit-crusher, delay, reverb, and several others. All of these effects have useful X/Y assignments and sound great in context.

While several of the devices let you customize your sounds and (in some cases) load your own loops and samples, there's also in-app purchasing of new loop packs and device presets from an expanding range of providers, including Beatport. Nicely done.

Meta.DJ goes far beyond beat-matching and "hitting play," venturing into musical performance territory. While a trifle sluggish on a first-gen iPad, it works well enough to get the hang of it without too much instability. On an iPad 2 or better, the experience is like buttah. If you've been looking for an Ableton-like experience from an iOS DJ app, Meta.DJ is the ticket. ♫

Snap Judgment

PROS Elegantly combines DJing and instrument-based live performance. Integrated X/Y pad effects. Intuitive user interface.

CONS Requires an iPad 2 or better for the full experience.

BOTTOM LINE An addictive mix of realtime DJ and musical performance tools.

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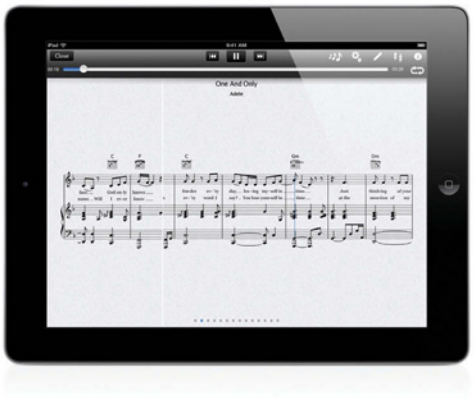
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5 THINGS I'VE LEARNED ABOUT Recording

BY KEN CAILLAT AS TOLD TO JON REGEN

AS A QUIET GUY, THE STUDIO BECAME THE PLACE WHERE I LEARNED TO express myself. It was there that I could be as loud or as talkative as I wanted, and also how to make my own personal statement in sound. Here are some tips that I still use in my recordings that I hope will help you succeed with yours.

1. Seek the Heart of the Song

Often, artists send me demos comprised of just one guitar and one vocal. They usually apologize for sending them in such a raw state, but for me, that's where the inspiration comes from. Often, it may just be one vocal and one instrument that are the actual heartbeat of song. The goal then becomes to make sure that nothing gets in the way of those key elements.

2. Make Each Track Count

The beauty of analog tape was that it forced you use your available tracks wisely. For example, a track of grungy guitar might play throughout the whole song—a little bit in the first verse, a little more in the second, laying out in the bridge, back in for the choruses, and so on. Point being, the part told a *story* and had growth to it. Don't just add tracks and instruments because you can.

3. Play with Panning

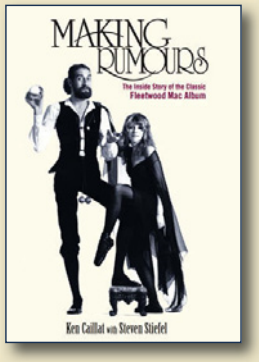
I'm a big fan of hard left/right panning. I always liked how the Beatles used it. On *Rubber Soul*, for example, there might be a different accented guitar part on the right side than on the left. Obviously, this isn't right for everything, but don't be afraid to take chances with where you position instruments in the soundscape.

4. The Ear Is Mightier than the Wallet

Most engineers think with their wallets, believing that the more expensive a mic is, the better it will sound—but that isn't always the case. These days, I use the Shure SM27, which costs around $300, on almost all my lead vocals, over a $10,000 Neumann U47. It just grabs the personality of the singer's voice.

5. Listen, Think, *then* Record

Once, an engineer was trying to get a backing vocal to sound like it was in the distance. He'd recorded the singer close to the mic, and had simply brought down the volume of the track. All it sounded like was a big voice at a low volume. So I told the singer to step back about ten feet from the mic, and that way, it *felt* small on the recording. ♫



Ken Caillat co-produced Fleetwood Mac's Grammy-winning 1977 album *Rumours*. Caillat revisits the album in his new book *Making Rumours*. Find out more at makingrumours.com.

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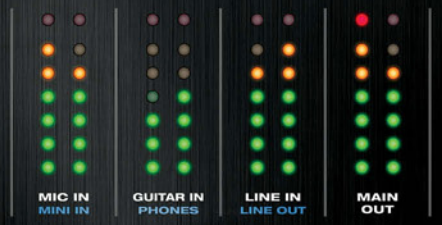

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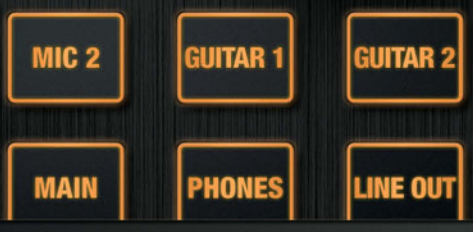
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